

SOLD BY
ERNEST MITCHELSON
52, GEORGE IV. BRIDGE
EDINBURGH.

1/0 G. VIII. Han

27,528/B/1

(1)

~~A~~

74

4/1

C

To

Dr Liddensale
from his friend
Hollings the
author

5/7/12

Dear Mother
I am in good
health and hope
this will find you
the same.

Researches
INTO THE
LAWS AND PHENOMENA OF
PESTILENCE;

INCLUDING A MEDICAL SKETCH AND REVIEW OF THE

Plague of London,

In 1665;

AND REMARKS ON QUARANTINE.

WITH AN APPENDIX: CONTAINING EXTRACTS AND OBSERVATIONS RELATIVE TO THE PLAGUES OF MOROCCO, MALTA, NOVA, AND CORFU;

BEING THE SUBJECT OF THE ANNIVERSARY ORATION, DELIVERED BEFORE THE MEDICAL SOCIETY OF LONDON, IN THE SPRING OF 1820, AND PUBLISHED AT THEIR REQUEST.

BY

THOMAS HANCOCK, M.D.

LICENTIATE OF THE ROYAL COLLEGE OF PHYSICIANS, AND PHYSICIAN TO THE CITY AND FINSBURY DISPENSARIES.

London:

PUBLISHED BY WILLIAM PHILLIPS, GEORGE YARD, LOMBARD STREET;
AND SOLD BY ARCH, CORNHILL; AND UNDERWOOD, FLEET-STREET.

1821.

Printed by H. K. Causton,
Birchin Lane, Cornhill.

TO THE
President, Council, and Fellows

OF THE
MEDICAL SOCIETY OF LONDON,

THE FOLLOWING

Researches,

PUBLISHED AT THEIR REQUEST,

ARE RESPECTFULLY DEDICATED BY

THE AUTHOR.

PREFACE.

BEFORE I enter upon the subject of this volume it may be proper to make one or two remarks on the causes which have given rise to its publication.

In the spring of last year, it fell to my lot to deliver the anniversary oration before the Medical Society of London—a task I was induced to undertake, in consequence of a special request transmitted to me from the Council; as the gentleman, formally elected to that office, had signified his wish to decline it. Under the peculiar circumstances, I endeavoured to fulfil the duty thus imposed upon me; and after the oration was delivered, the Society was pleased so far to testify its approbation, as to request that I would, in some form or other most agreeable to myself, lay the

substance of it before the public. To have committed it to the press as it was delivered, would have been to withhold a great part of the facts and details, too copious for such a discourse, yet necessary to be known, on which my general inferences were founded. I discovered also that I had drawn some conclusions which did not seem deducible from any thing I had therein stated. And, although I was anxious to comply with the request of the Society as soon as possible, yet the extensive nature of the subject, added to the very crude state of my materials, rendered some delay unavoidable. But, as I appeared before the Society with reluctance and apprehension, so I now appear before the public under nearly similar impressions. I cannot, however, be insensible to the approbation of my respected associates; and whilst I am anxious to retain it, I trust that the many alterations I have since introduced into the oration will subject me only to blame for whatever errors may now be found in it, and am still willing to hope that it will not be less worthy of their notice in this new form. At the same time, I have considered, that in presenting a work on so deeply interesting a subject to the community, a subject both comprehensive and obscure, on which opinion is exceedingly divided, my duty to the

Society would be merged in the more important duty to the public; and that a discourse, however calculated to arrest the attention of an audience by its general views, could only derive its claims to public notice, when subjected to closer scrutiny, from the number, authenticity, coincidence and arrangement of the facts it might contain.

I have, indeed, to regret that so long a delay should have taken place since the oration was delivered, though it has enabled me to add several illustrations, and perhaps to lessen the number of its defects. I am, however, conscious that many of the latter still remain, which, if I now seem to want the ability, it is yet possible that a more perfect leisure than I can command, would, in some degree, enable me to correct. I have, therefore, been more disposed to hazard an imperfect specimen, than to flatter myself with the expectation that I should be better qualified a few years hence to offer any thing on this dark and intricate subject, more certain as to medical science, or more perfect as to composition, than at the present time. For when we consider the importance of knowledge, and of correct views on so momentous a subject as that I have chosen, and take into account the great uncertainty as to the future, want of literary polish is,

without question, a very weak, if not a blameable excuse, for withholding any thing that may contribute, never so remotely, to lighten the obscurity. For the delay which has taken place I could assign many reasons. The labour of research in many volumes, and, in the same, many times; and little leisure at my command, connected as I am with several public institutions, have been among my principal difficulties: and, if a weak state of health, in the last summer, and frequent interruptions, often in the midst of sentences and arguments, might be mentioned, I should be disposed to urge them in my behalf, if I had not always considered that it was fair to judge a work by its intrinsic merits alone. In presenting it therefore to the public, whilst I reflect that I have performed a duty, however trifling, to the best of my ability, I endeavour to feel that composure which will prepare me to submit patiently to any reception it may experience.

From respect to the Medical Society, it was my intention to retain the form of an oration throughout. But as the additions have extended beyond all reasonable length for the matter of an hour's discourse, and as every part has been new-modelled, that title would now be obviously unsuitable.

The only indulgence I venture to solicit

from the general reader is for the insertion of a few remarks with which my address was opened. These partly relate to the Society, and partly to the disposition of mind, in which it appeared to me that speculations in medical science should be prosecuted.

In alluding to the former, I was led to congratulate my fellow members on our increasing numbers and the prevailing harmony in our meetings; and it would not have been rendering justice to our late worthy President, Dr. Clutterbuck, which I am pleased with this opportunity of noticing more publicly, had I omitted to ascribe a considerable degree of our prosperity to his learning, influence, and active zeal.

And as by the laws of the Medical Society no President can retain his seat for a longer period than two years, it gives me satisfaction to state that the election has lately fallen on a gentleman, well qualified by his character and abilities, to fill the chair—my learned and much esteemed colleague, Dr. Uwins.

I have thrown into my first chapter the remarks above alluded to, which relate to the undemonstrable nature of medical speculations, and to the doubts of the old and experienced; and which ought to teach us that too confident a mode of expression neither befits the science,

nor is it becoming towards those, who, after a careful examination, have adopted contrary opinions. If I have therefore myself been too free in my remarks of others, and have deviated from this rule of forbearance, it has been especially where I have seen that dogmatic spirit, which, from one or two cases partially viewed, in a petty district—and these uncertain—would peremptorily decide a question as applicable to the whole world and to all times and seasons, that nothing but the most comprehensive induction could determine. As, in this inquiry I have followed implicitly no man's opinions, however high his authority, I have thought myself the more at liberty to take a general review of all: and where I perceived so much contradiction, the only deference I could pay was the deference we owe to truth. When there is a positive opposition of sentiment, one party must be wrong, unless each is in extreme: and if each is to be concluded right in his individual observations, yet each may still be wrong in his exclusive application of them to a general rule, and in his inference that there can be no other species of evidence different from his own. Therefore, some governing circumstances, perhaps admitted by neither, must be assumed to reconcile the contradictory evidence.

Having so far stated my motives in thus appearing before the public, I shall now advert to the subject itself of which I am to treat.

Ever since the year 1806, when I printed my Inaugural Dissertation on the Laws of Epidemic Diseases (*quædam de morbis epidemicis generalia complectens*), I have been interested in the discussions relative to their causes and mode of propagation. The parliamentary inquiry, instituted in 1819, on the doctrine of contagion in the Plague, awakened my attention to the subject; and the public reports, from many distant countries, of the unusual spread of epidemic and pestilential diseases in different parts of the world during the same year, besides the prevalence of epidemic fever in our own islands, naturally heightened its importance. But I have been especially led to consider the conflict of opinion, now existing, and which has been more clearly developed by the evidence contained in the report of the Committee of the House of Commons; which, if we may judge also from the decisive tone of the assertions in the modern controversial treatises on the subject, is not likely soon to be settled.

I perceive very clearly, that, if any should condescend to notice my speculations, as I have endeavoured to steer a middle course,

PREFACE.

and to weigh conflicting testimony, so I shall be exposed to severe animadversions from those who look entirely to the wide ocean of atmospheric impurity, with boundless curiosity on the one hand, as well as those who explore with confined research every creek and harbour for the *fomes* of imported contagion on the other. "In medio tutissimus ibis." It will perhaps appear that neither the comet's glare, nor the smuggler's infected bale, ought to seduce our attention from the consideration of causes operating perhaps secretly and surely and for a continuance, within the sphere of our own institutions. Some limit, therefore, in which the state and circumstances of human society more immediately concerning our welfare have a degree of influence, as well as atmospheric vicissitudes, that cannot be controuled, seems to be pointed out as the only path which we can wisely follow in this inquiry. And if some, from a restless spirit of generalization, will draw conclusions, beyond a rational induction, let them have some little regard for those, who, not having joined themselves to either side, while they are anxious to discover the general laws that will embrace the contending facts and opinions, hesitate still to settle a single point which the authority of science will not sanction.

I am here inclined to make one request of my reader, if it be not too much for an author to solicit, that the following pages may be perused to the conclusion, and the whole considered, as I have endeavoured to unite the several parts in a connected chain of argument, before he determines against the principle. Let him notice, that the views I support are deduced not only from the testimony of the most eminent physicians, but of philosophers and historians; and that I take little merit to myself but the common drudgery of arrangement. Let him also notice, that the several parts have a bearing, more or less distinct, upon the general principle; and that the subject itself is vast in its extent, and comprehensive in its relation; so that a view of a single part cannot give a correct idea of the whole, nor ought the whole to be viewed but in connection with every part. Let him consider, that a multitude of illustrations might still be added, had time and bulk of volume and expense been no object: and he may perhaps concede, that although great uncertainty prevails, and ever will prevail, in the phenomena relating to life and death; yet, considering the peculiar kind of evidence on this subject, there is a coincidence of observation from the earliest ages of the world truly remarkable; and hence a degree

of knowledge attainable in medicine, which justly entitles it to the name, and raises it to the rank of a Science.

But the subject is on some points so loosely touched, and there are so many other things connected with it requiring elucidation, that I can only regard this volume as the mere outline of what such a work ought to be. Many things I have omitted, because I thought they might now be spared; and others, because they did not appear sufficiently matured for the public eye. It will readily occur, that not only on the principal subject of these researches, but on the origin, spread, and decline of every other epidemic visitation, however mild, there are many desiderata; and in relation to the Plague, it is of infinite importance that, if the thing be possible, we should possess one clear and well authenticated case of imported Pestilence, to decide that obscure question: for, in the annals of the disease, I do not know of such an undoubted case; and I make this declaration, after a most careful and anxious research upon that point. In conclusion, I can only say, for myself, that, although in looking forward to the reception of this book, I have endeavoured to anticipate neither good nor ill success, and yet to prepare myself for both, that I might not be elated by the one or depressed by the other: yet for

my subject, I may venture to express a most earnest solicitude, that, whatever may be found to be the correct opinion, and whoever may devote himself with abler powers of observation to the pursuit, and with abler pen to the illustration, the truth may be at length discovered; and to add my perfect conviction, that we cannot hope, by any other plan of inquiry, to attain that desirable end.

But in the mean time, I shall make it my business to profit by the remarks of candid criticism, I hope with a view to correct the errors into which I may have fallen; and if this specimen, imperfect as it is in the execution, should, in the plan, be approved by my bretheren of the profession, I shall endeavour to prosecute the inquiry as far as leisure and ability will permit me.

A correct history of the Sweating Sickness itself, and the circumstances of the country under which it arose and prevailed, would alone afford a useful and interesting subject of medical investigation. Respecting the improvement of our knowledge of the causes and origin of epidemic diseases, from those confined in their range, to the more universally diffused, it appears to me the most eligible plan would be that of keeping accurate registers in every part of the country, to note the time when any such

disease is first observed, the symptoms it then assumes, the course and duration, the previous as well as the existing state of the weather, the local situation, the exemptions, the classes and ages most liable to its attack, the evidence as to contagion, the state of disease in the lower animals, and any other remarkable phenomenon. Something of this kind was recommended by Dr. Fothergill, respecting the Epidemic Catarrh of 1775, and by Dr. James Sims, respecting that of 1803; and the plan seems to have been followed with some degree of success, by Dr. Harty of Dublin, in his account of the late epidemic fever in Ireland—a plan not unlike that adopted by my friend Luke Howard, relative to the weather; a specimen of which he has given in his interesting work on the climate of London, that bids fair to improve that branch of natural science, by noting the meteorological phenomena, and their corresponding dates, in different parts of the country.

T. H.

Finsbury Square,
6 mo. 1821.

Contents.

	PAGE
Chap. I.—Of the slow advancement of medical science	1
Chap. II.—Of the principal authors who have written on epidemic and pestilential diseases	6
Chap. III.—On the use of the words, contagion, infection, &c.	18
Chap. IV.—General remarks on the difficulties of the subject, and on the mode of treating it	34
Chap. V.—The Plague of London	49
Chap. VI.—Of the time when a Pestilence appears, and the subjects it chiefly attacks....	86
Chap. VII.—Of the seasons and natural signs preceding and accompanying Pestilence.....	91
Chap. VIII.—Of the precursor diseases of Pestilence.....	119
Chap. IX.—Of the doubts as to the name and nature of Pestilence	137
Chap. X.—Of the various symptoms and characters of Pestilence	144
Sect. I.—Of the variety in the symptoms	ib.
b	

	PAGE
Sect. II.—Of the variety in the contagious qualities	152
Chap. XI.—Of the accompanying mortality and progressiveness of Pestilence	171
Chap. XII.—Of the decline of Pestilence.....	177
Chap. XIII.—Of the exemptions during Pestilence	183
Chap. XIV.—General remarks on the preceding facts, relative to the cause of Pestilence	197
Sect. I.—Of the supposed origin of Pestilence, by imported contagion, concurring with a peculiar state of air.	ib.
Sect. II.—Of Pestilence, considered in its progress from place to place, with reference to Contagion	211
Sect. III.—Of the exemption of Oxford, and of the former state of London and other places, as to disease and filth	221
Sect. IV.—Of the evidence from quarantine establishments and lazarettos	232
Sect. V.—Of contagion, and a pestilential constitution of the air, viewed in contrast	246
Sect. VI.—Of the opinions concerning the origin of pestilential contagion; of its analogy with some other febrile contagions; and the probability of its causes being indigenous	251
Chap. XV.—Of the principles on which the propagation of Pestilence from one country to another seems to depend, and the prognostic signs of its invasion	271

Sect. I.—Of the supposed cooperation of a pestilential constitution of the air, predisposition of body, and contagion, or its exciting causes	271
Sect. II.—Facts relating to the inquiry how far the absence or presence of Plague may be presumed to depend on certain states of the soil	285
Sect. III.—Observations relative to the dependence of Plague on manifest qualities of the air and changes of the seasons	294
Sect. IV.—Observations on the connexion of Pestilence with insects, disease among brutes, famine, &c.....	313
Sect. V.—Of the prognostic signs of Pestilence from diseases, and general summary	324
Chap. XVI.—General remarks on other epidemic and contagious diseases ..	336
APPENDIX. ..	351
1. Extracts from J. G. Jackson's Account of Timbuctoo, &c. relative to the plague of Morocco in 1799	352
2. Extracts and remarks relative to the Plague of Malta in 1813	357
3. Extracts and remarks relative to the Plague of Noya, in Naples, in 1816 ..	369
4. Remarks on the origin of the Plague of Corfu in 1815	374

OBSERVATIONS
ON THE
LAWS AND PHENOMENA
OF
PESTILENCE.

CHAP. I.

On the slow advancement of Medical Science

AFTER reviewing the slow progress of Medicine, which we are told by high authority, "has been more laboured than improved," and considering the eminent talents employed in the pursuit, very often with little effect, an author must possess no small share of confidence, who imagines that he can add a ray of light to the science.

Hence a question will naturally suggest itself to every one who enters the field of labour without any new theory or system to support, and without the consciousness of superiority, whether any advantage in a philosophical point of view can be gained by adding another volume to the numbers that are daily issuing from the press.

To accumulate doubts is adding nothing to science ; and to heap fact upon fact is nearly as unavailing, where the observer may be partial, and the authenticity disputed. So that an arrangement of observations, though supported by plausible reasonings, and imposing by its method, may still be artificial, and not the method of nature* faithfully transcribed. But, in a pursuit where there is such ample room for speculation, and where conflicting opinions may be as much opposed to the nature of things as they are to each other, how necessary it is that moderation and impartiality should prevail, and that forbearance and liberal feeling should be exercised by all ! He that looks only to the advancement of knowledge, and would take a lesson from experience, may be persuaded, that as the controversial folios of former times are thought unworthy of our notice, so will the less cumbrous productions of the present day appear to our successors, which, by hypothetical views or rash induction, labour to build an individual's fame rather than the edifice of science.

Therefore, however splendid the talents, and excellent the qualifications of a Physician may be, there is in my opinion no profession which demands a greater share of what may be termed philosophical diffidence than that of Medicine. For, not to speak of the multitude of doubts, and diversity of opinions, which have

* The word *nature* has often been defined: but I have met with no definition so apt, and at the same time so concise, as that of Aræteus, applied to the visible creation, cited by Dr. Hird—viz. The Art of the Godhead.

been entertained by the most enlightened practioners ; not to speak of the difficulty of proofs when all our arrangements have been adjusted with the nicest skill ; if we look to Him, as we ought, with reverence, whose power we seem in some degree to emulate, when we assume to ourselves the ability to ward off the stroke of Death, and to restore to our fellow-creature the blessing of Health, we are instructed by every thing to regard ourselves but as humble instruments of good to the community. It was a just and pious remark of Lorry, and it were to be wished his example was more followed in the present day, “ I will never permit myself, says he, to assert, that *I have cured* such a patient, but that he was under my care, and the disease terminated happily.”

Hence, from the very nature of the profession, we all stand in need of mutual indulgence—a profession liable to uncertainty in all its departments—the science imperfect, the art more imperfect still ; the laws of nature’s operations in the animal machine but little understood ; the connection between mind and matter dark and mysterious, perhaps inscrutable ; the effects of remedies often disappointing, varying even in the same, and infinitely varying in different persons ; the features of disease according to age and climate and season perpetually changing their form ! I am aware, however, that indolence is often the parent of philosophical apathy and scepticism ; and should regret by such observations as these, even if it were possible for me, to damp the ardour of medical inquiry. Though we cannot always arrest the career of the enemy of our physical enjoyments—as against such a resistance an

insuperable barrier is opposed by a Law of our nature—we must not at the same time forget what has already been accomplished; nor omit to render justice to the bounties of Providence and to the resources of our art. For we are reminded by many signal discoveries, and by acknowledged axioms, that a judicious use of the various means with which we are surrounded, can enable us not only frequently to alleviate the pains, but (as far as the inference may be warranted) to prolong the term of Human Life. The path of Discovery is without doubt still open in various directions, to reward the cautious and perhaps the bold adventurer. Accident may indeed discover at some happy moment what has eluded the most learned and diligent research. But the observation must on the whole be deemed correct, that Medicine has not hitherto received any notable improvement by speculation; nor is it likely to be advanced as a science but by the slow but very humble progress of experience—a wearisome path, which men of superior and brilliant endowments will rarely condescend to tread. For, how often have we seen the ingenious and acute, weaving systems, as from their own fancies, beautiful in theory, but too delicate for the touch—examples of subtile and aspiring thought, but too refined for the uses of Life! And on the contrary, how many men endowed with the true spirit of Philosophy, have spent their lives to an advanced period in the painful and arduous duties of their profession, without leaving behind them one single aphorism or universally-acknowledged truth, to adorn the archives of Medical Science!

If we regard the uncertainty to which the most

intelligent are every day exposed, how mortifying to our Pride is the reflection, yet how frequent the occurrence; that after doing all perhaps which art or skill can effect, the final catastrophe will sometimes unexpectedly occur, to throw a stigma upon the fairest reputation; while the ignorant pretender, by some hazardous feat, gains indiscriminate and unmerited applause!

Dr. Ratcliffe, eminent in his day, has well observed, and with a candour creditable to his years, "that when he was young and yet unskilled in medicine, he possessed at least twenty remedies for every disease; but now, says he, since I have grown old in the art of Healing, I know more than twenty diseases for which I have not even a single remedy."

"Fateor equidem ea esse rudia, inchoata, et manca" says the amiable and philosophic Heberden, in speaking of the fruits of near fifty years laborious observation and experience in his profession.

The monita et præcepta of Mead—the few beacons as lights or cautions which the oldest and most sagacious Physicians have been able to erect at the close of life, on a calm review of their labour; manifest how short is the longest term allotted to man for the exigencies of our art; and how difficult to be attained that well-founded experience which is ready for every emergency. Hippocrates and Trallian wrote as if they were well aware of their deficiencies, and could blend the humility of science with the true wisdom of age.

So hard it is to establish a general law or even to found the simplest aphorism in Medicine; and it must be allowed, the reproof which Baglivi, a man of no

mean discernment, urged against the physicians generally of his day, applies too correctly to many of the present time.

“Aphorisms, or general precepts, says he, are like road marks and standing beacons, to direct us in surmounting the difficult cures of diseases, which in ancient times were not laid down but by men of the best learning, worn out with age and practice; men of pointed thought in espying the subtleties of differences, of patience in doubting, deliberation in asserting, and prudence in making a just disposition. But now-a-days Physicians take up the most general propositions from two or three experiments made as it were at random; and the most inexperienced tyro claims a right of pronouncing aphorisms in physical matters.”

CHAP. II.

On the principal Authors who have written of Epidemic and Pestilential Diseases.

IT is generally known that Dr. Mead was called upon officially about a century ago, when consternation was pervading Europe on account of the pestilence of Marseilles, to compile a History of the Plague, and devise a system of rules for preventing its introduction into England. In proportion to his ability and learning, and the high station he occupied in society, has been the influence of his opinions on the subject ever since.

That he had numerous recorded facts to authorize many of his conclusions, and to justify the strong ground he had taken ; and that it was the safest ground to rest upon for the purpose of recommending to a statesman restrictive measures of a definite and decided character, cannot, I think, be reasonably denied.

And, accordingly, the inferior writers, who rose up immediately after with multitudes of facts of an opposite description, met with little attention either from the profession or the public.

It was not to be supposed, that the influence of terror and of wholesome caution would so soon be removed, as to permit the community to repose with confidence in the unqualified assertions of these writers, that there was no contagion in Plague ; nor that the faculty would generally adopt a belief hostile to the conclusions of one so eminent as that celebrated Physician.

It appears to me, notwithstanding, that Dr. Mead's treatise on the Plague contains many contradictions ; that he has applied in his argument some unwarrantable assumptions calculated to mislead ; and that he has attempted to explain away facts militating against him in a manner injurious to the progress of medical Science, and to the real interests of the community.

But after all that has been said, some observations of this writer are of great importance. His researches on the subject have led him to several admissions, which acquire additional weight from his authority, and I have thought myself at liberty to comment upon them freely.

The principal are these : " That it has never been known when the Plague did not first begin among the

poor." "That a corrupt state of air attends all plagues." And "That fevers of extraordinary malignity are the usual forerunners of plague."

It will be seen how far these positions are reconcilable with others of the same author.

Before the middle of the last century, Dr. Short published his *Chronological History of the Weather and Diseases*; a rare and valuable work, abounding with many useful observations. But it contains reports of events so strange—nay almost præternatural, that, both as respects contagion and atmospherical phenomena, his credulity, amounting to superstition, is so great as to lessen the value of his statements very materially. He seems, however, upon the whole, to have been a candid narrator of the observations of others; but to have taken every thing for granted, however incredible, with but little examination. And it must be allowed he is often loose in his statements and incorrect in his dates.

The learned work of Dr. Patrick Russel, who practiced at Aleppo during the Plague of 1760–1–2, is in the hands of most; and contains a minute account of this disease, its origin, spread and decline—perhaps the best medical account of any individual plague extant.

Dr. Russel appears to have described with accuracy what he saw, and to have recorded faithfully what he heard. The comparison he has instituted between several of the phenomena of plague as exhibited in Syria, Egypt, and different parts of Europe, cannot but be interesting to every reader. Yet he has thrown but little light on the cause: for, having assumed the principle, that the disease is only propagated by conta-

gion, the knot of difficulty was soon divided, and the inquiry at once cut short: and, hence, all his energies were directed to the best means of security and of arresting its progress by quarantine and other regulations.

Notwithstanding, he candidly admits, that such regulations have often proved ineffectual—in short, that Plague has frequently occurred insidiously when they have been rigidly enforced; and, in a more extraordinary manner, has often ceased, when they have been entirely relaxed. Under the influence, however, of these, and many other striking facts, there is scarcely any writer who has laid so much stress as Dr. Russel on, what has been termed, A pestilential constitution of the air.

A very learned and ingenious writer on the other side of the Atlantic, Noah Webster, of New York, has given us a history, in two volumes, of all the most remarkable plagues upon record. His work is, in many respects, a great improvement on that of Dr. Short; as he has been enabled to illustrate the histories of former plagues by many phenomena connected with the modern visitations of pestilence in the new world. He has endeavoured to associate with such visitations, in all ages, many singular natural events; and has laboured to prove a connexion between epidemic diseases and the appearance of comets, earthquakes, and volcanic eruptions.

Now, though his book is an excellent specimen of laborious research, and contains proofs of many striking coincidences in different pestilential periods, yet the connexion between the physical events above noticed is so remote, and in the present state of our knowledge

so inexplicable, that medical science, as it regards the theory or laws and order of such a connexion, is scarcely advanced a single step by all the labour. This author has, however, great merit for the philosophical view which he has taken of some of the laws of epidemic diseases; and his history abounds with many interesting facts, both as to the progressive spread of such diseases, and the local circumstances that accompanied them.

A living author, who has manifested no small degree of zeal in the inquiry, has lately published, in an elaborate treatise, the "Results of an Investigation respecting epidemic and pestilential Diseases, including researches in the Levant, concerning the Plague." I now allude to the work of Dr. Charles Maclean, who lays claim to original discoveries on the subject. The side of the question advocated by this writer is supported with no little display of learning, as well as with considerable ingenuity and powers of reasoning; and a very decided opinion is expressed that the disease, called Plague, is not, under any circumstances, contagious. He even goes so far as to say "it has been shewn, by conclusions logically deduced from undeniable premises, that it is impossible epidemical diseases should ever depend upon contagion;" and states that the prevalent notion of contagion being an inherent quality of pestilential fever, is absurdly derived from a popish rumour of the sixteenth century.

This, however, is noticed by writers long before Dr. Maclean.* The fact appears to be, that Pope Paul

* Vide Distinct notions of the Plague, 1722. Ingram on Plagues, and "Plague no contagious disease."

the third, about the year 1547, commissioned his legate, Cardinal Montè, to fabricate some pretext for removing the celebrated council of Trent, which was then sitting in debate on the abuses of the ecclesiastical power, to some town within the papal territory. An epidemic fever, it was said, then prevailed at Trent : many of the bishops became alarmed and fled ; some, if not all, on the Emperor's side, raised their voices against the plot ; but Fracastorius, physician of the council, aided the imposition with all the zeal of a devoted catholic, and the council was accordingly translated to Bologna. From this time, Dr. Maclean asserts, it became almost heretical to doubt of the contagious nature of Plague ; and the error, chiefly because it was sanctioned by the sovereign pontiff's authority in the first instance, has been propagated in Christendom, as a point of medical orthodoxy, and continued down to the present time.

Dr. Maclean adduces many specious arguments in support of his opinions. He has collected a number of interesting facts, and has brought together some useful, general observations, respecting the prevalence and decline of Plague in different countries ; and it cannot be denied that he possessed many advantages, and had good opportunities of investigation, as he resided for some time in the Levant, for the sole purpose of observing the nature and progress of this formidable disease. Yet I cannot perceive that he ever witnessed its devastations or its career when raging as a pestilence.

When, however, Dr. Maclean's confidence in his own opinions led him so far in the line of direct proof as to brave the destroyer in its den, the pest-house, at

Constantinople ; though we may applaud his resolution as well as his sincerity, and give him due credit for the ingenuity with which he seeks to explain the fact according to his hypothesis ; we must, I think, reasonably doubt his principles, when we find that, by his own statement, he was attacked with this *non-contagious* malady on the fifth day after he entered that nursery of pestilence !

I am unwilling to criticise an author too severely who has laboured in the cause with so much intrepidity and active zeal as Dr. Maclean ; but I cannot withhold my regret, that throughout his labours we are so constantly reminded of his pretensions to discovery, and that the eagerness to uphold his own fame is far more apparent than a desire after truth ; and I regret it, for his own sake, because there is much valuable matter contained in his book.

It would be injustice to another living author, Dr. William Heberden, were I not to refer to his valuable “ Observations on the increase and decrease of different Diseases, particularly the Plague,” published in the year 1801. Dr. Heberden has treated the subject, though briefly, with equal candour and ability ; and we have only to regret that one so capable did not pursue it further.

He has wisely followed the example of his late venerable parent in his excellent commentaries, and appears to be more content with the simplicity of observation than with the parade of generalization, from hypothetical views, to the least prejudice of truth. He is one of the few who have ventured to disengage themselves from the trammels of system ; and, who in doubting, if I mistake not, the specific and foreign

character of pestilential contagion, has discreetly abstained from plunging into the opposite error—an error that has been productive of most serious injury, by deterring many cautious inquirers from the pursuit of a middle path.

Dr. Heberden has satisfactorily shewn the connexion of plague with what is called malignant fever; and, so to speak, their affinity, by mutual changes into each other. He has also shewn their connexion with poverty, filth, and crowded cities.

The work of Dale Ingram, on the Plagues that have appeared since the year 1346, published in 1755, contains but little either original in argument or novel in fact, and was considered by Dr. Russel as of weak authority. He says a good deal on the popish origin of the doctrine of contagion, on which Dr. Maclean has favoured us with a very ample commentary; and asserts the probation of his principles with almost as much confidence as the latter Physician. But notwithstanding the more powerful logic of Dr. Maclean, either the cause or the arguments must surely be weak, when doubts are still entertained by those who have weighed his reasonings and facts in the most equal scale.

The City Remembrancer is well worth the notice of those who wish for a particular narrative of the circumstances attending the Plague of London, compiled from the best sources, chiefly from the papers of Dr. Gideon Harvey. It also contains a number of facts relating to other Plagues, of very general interest.

A few useful hints may be found in a small, well written book, entitled “Considerations on the Nature, &c. of Pestilence,” published as periodical papers, by the Freethinker, in 1721. But his conclusion is not at all in unison with the ability manifested in some of

his views—that bituminous exhalations from countries abounding with Naphtha, wafted by the winds, are the cause of Pestilence; though he displays some learning in the illustration even of this fanciful opinion.

To go back nearly two centuries, I cannot refer to a more comprehensive and philosophic treatise, considering its date, than that of Diemerbroeck, written on the Plague of Nimeguen, in 1636. He has been accused of superstition, if not inaccuracy, because he has related some facts which are not easily explained according to the commonly received notions of contagion. Yet he had no doubt of the contagion of plague. But it would have been well for science had subsequent writers imitated his fidelity, candour and piety. The work of Mercurialis, on the Plague of Venice, in 1576, comes next to that of Diemerbroeck in description and fair argument.

Mertens, who described the Plague of Moscow in 1771, and Chenot that of Transylvania, in 1756, are also worthy of notice; but, on some points, their narratives convey as meagre information as those of Hodges and Sydenham respecting the Plague of London.

In short, it is only by a comparison of all these authorities, and others, whom it would be tedious to name, that we can expect to elicit general truth, and to discover the prominent circumstances of pestilential periods.

According to their several prepossessions, most of these authors appear to have sought out that peculiar description of facts which more especially favoured their own opinions.

In this brief catalogue of writings on the Plague

I must not omit to notice the work of Pappon, entitled "*Epoques memorables de la Peste*," published in 1801.

In the commencement of his work Pappon has taken a very philosophical view of the subject, and has endeavoured to shew, by historical facts, that in Rome, in Egypt, and also in the northern parts of Europe, in very early times, Plague has visited every country with a frequency always proportioned to the intensity of what he considers its undoubted causes—uncultivated lands, marshy soil, corrupting lakes, filthy cities, concurring with the occasional causes of intemperature of the seasons and famine; and, on the other hand, that where the first sources of sickness have been removed, the second have but rarely exerted their power in the production of this evil.

But as this writer proceeds in his inquiry we find his ideas taking a singular turn. He combats with ability the notion that we are to look to Egypt for the original seminum of the disease; and yet the bent of his researches is to prove that in every modern European Plague foreign contagion has been the cause; inferring that agriculture and the arts of civilization are in such perfection as, at the present time, to exclude every thing pernicious from a participation in those indigenous causes which were formerly, by his account, capable of engendering the mischief.

It may, perhaps, be said with truth, that we are indebted to two writers, not of the profession, viz. Noah Webster, for the best history on Epidemic diseases; and a plain tradesman, H. F. for the best history of the Plague of London. The details in this last work are given in so circumstantial a manner as to

interest all; though it must be confessed some of the narratives are too much in the style of Defoe, the author of *Robinson Crusoe*, who is said to have moulded the original story of H. F. to his own taste. His leading facts unquestionably agree with other respectable authorities; and the bills of mortality, to which he often alludes, speak for themselves.

Of late years a number of inferior tracts have been published, and the institution of a parliamentary inquiry has, perhaps, called many such into existence; but the question of pestilential contagion appears to rest nearly in the same state of uncertainty. For, little more has been given in evidence, by the adverse parties, than opinions, founded on supposed facts of *infection* and *non-infection*, to which each party has referred for proof of the respective doctrines.

To canvass all the contradictory notions in these would only be a waste of time. But I cannot well avoid noticing the assertion of Dr. Granville, that the disease, called Plague, is "never epidemic; that it is independent of all influence of the atmosphere; that it commits its ravages when no possible cause of unhealthiness exists, and is neither checked nor promoted by the south or north winds; by the winter or the summer; by an elevated or a low topographical situation.*"

Either Dr. Granville or myself must have consulted the records of the visitation of Plague in former ages, as transmitted to us by the most careful observers,

* Vide Letter on Plague and Contagion, p. 120, by A. B. Granville, M.D.

to very little purpose; seeing we draw conclusions so opposite to each other, as, I think, the passage above quoted will prove to be, when compared with those views which a careful induction of facts will enable me to present to my reader.

A much larger publication, in comparison with that of Dr. Granville, has recently issued from the press, by Dr. Faulkner, who collected facts at Malta, in 1813, in order to prove the contagious nature of the Plague at that time. But if this Physician had taken as much pains to procure further information respecting the concomitant circumstances of that period than what we already possess from other sources, as he has employed to establish a position that few are found to deny in a properly qualified sense, he would, in my opinion, have rendered a much more important service to society. I shall have occasion to notice this Work hereafter.

Much labour has been consumed in attempting to shew that the ancient classic writers, poets and historians, and our best medical authorities, of the Greek and Roman schools, were well acquainted with contagion as an emanation from or product of disease; and understood the word as it is used in modern acceptation; as if the mere opinion of the ancients, on a subject liable to so much doubt, could in any way clear up the difficulty, or satisfy the moderns upon the question.

At the same time I know not how Dr. Maclean, who is a man of learning, could suffer his prejudices to prevail with him so far as to contradict the host of evidence upon this point. For if Hippocrates and Celsus are silent upon the question, Thucydides, Aristotle, Livy, Virgil, Lucretius, Ovid, Galen and Aretæus,

are all against him. Yet Dr. Maclean attempts to shew that Contagion was unknown in early times—that it was a popish invention of the sixteenth century, and that he was the first who detected it and established the contrary opinion.

I forbear to quote the passages from these early writers. Webster has given some; Dr. Granville others; and a few may be seen in the work of Sir A.B. Faulkner.

CHAP. III.

On the use of the words Contagion and Infection, &c.

It would undoubtedly tend to the elucidation of a subject, if we were to affix precise meanings to the terms we employ. It is therefore to be lamented, that while some consider the words Contagion and Infection as synonyms, others are in the practice of not only making distinctions between them, but of giving to each term an arbitrary signification neither very definite nor very intelligible; and, besides this, of departing even from their own definitions. If we cannot agree in the use and acceptation of the terms we employ in controversy, we may be disputing about words instead of things. And in detailing or reasoning upon facts, if different observers employ different words to denote the same things; we may be deprived of perspicuous views, even of facts themselves. On a subject so obscure as that under discussion, it is of the greatest importance

not to cloud the little we know. If there is really no ground for any distinction between the words in question, let them be considered synonymous as in the old English writers. Or if the improvement in medical knowledge has made it necessary to multiply our technical phrases, so as to apprehend distinctions not before known, it is very desirable that we should understand each other, and observe a common rule. But I am not aware that any such improvement has taken place; and at the same time, it appears to me, the indiscriminate use of these words has been unfavourable to clearness of ideas upon the subject. It speaks as little for the general correctness of medical phraseology, as it does for the extent of our knowledge concerning the propagation of plague, that such different views have been taken by men of science, not only of the terms of art, but of important facts. I now allude to the evidence which was subjected to the consideration of the select Committee of the House of Commons, on the doctrine of contagion in the Plague. Not any two who have attempted definitions have exactly agreed; and scarcely two have coincided in opinion of the facts even on the same side of the question. Even the same individual, it may be observed, when labouring to establish a favourite opinion, is scarcely consistent with himself. This ambiguity, however, may be owing to the nature of the subject, and to the want of agreement as to contagious and non-contagious maladies.

I subjoin several definitions; some taken from the report, and some from other sources.

“Infection includes contagion, and differs from it only in being more comprehensive.” MACLEAN.

“Contagion, is a mere mode of action,” resulting

from the habit of certain diseases to affect individuals. It is not a principle."

"Infection is a peculiar state of the atmosphere, rendered unfit for the healthy exercise of life by the crowding together of a number of persons ill of the same fever, in a given place, and during a given time; thus an epidemic may become infectious."

Dr. A. B. GRANVILLE. 31.

"Infection is the act of transferring disease from one body to another in whatever way it can be done: contagion is *recieving the disease* by touch alone."

Dr. JOHN M'LEOD.

"Infection is disease produced by a contagious state of the atmosphere." Dr. WM. GLADSTONE. 23.

"Contagion expresses only a *mode* of infection. Infection denoting the power or quality of a morbid agent to contaminate with disease, whether by the air or by contact mediately or immediately with a diseased person. In the latter of these meanings it signifies contagion, which differs from infection only in being a term of lesser extension." Sir A. B. FAULKNER, M.D.

"Specific *contagion* is a quality of a disease which, within a suitable distance, communicates it from a body affected with it, to a sound body with great certainty, and under all circumstances of season, weather or situation, as itch, leprosy, syphilis, small-pox, measles, and perhaps angina maligna. *Infection* is that quality of the disease which may or not excite it in a sound body within a suitable distance, or by contact; and which depends on heat, foul air, predisposition, &c.; as plague, glandular and bilious, dysentery, typhus," &c.

Dr. BAILY, of New York, vide WEBSTER, ii. 222.

There is certainly more clearness of expression in

Dr. Baily's definition than in most of the others, as we see distinctly what he means. For, in the former there is such a confusion between the agent and the mode of its action, as a quality or substance, and the effect produced; as well as between the different circumstances of the agent, whether in the air or in the body, or in fomites, that we look in vain for precise ideas: for, the same word Infection is applied to all these states indiscriminately.

At the same time it may be doubted whether the word quality, used by Dr. Baily, is a correct expression; for if there be such things as contagious particles, quality will not suitably signify them, as no quality is a substance: and again, some of the circumstances annexed to the diseases, classed under the law of Infection, undoubtedly belong to the conditions marked under specific contagion. Therefore, in this view, no scientific grounds appear for the use of different words according to Dr. Baily's method.

"Infection is that manner of communicating a disease by effluvia from distempered bodies, which occasions the same disorders as in the bodies they came from." QUINCY.

"In contagion from body to body, the Infection is received many times by the body passive."

Lord BACON.

"Infection should denote a quality or affection of a substance or body." Dr. MITCHELL.

"It augments the risks of Infection." Dr. BARKER.

"The people to whom the disease is imported, *upon their infection*, may be managed according to the most experienced methods in the like diseases."

Dr. SHORT.

“ Sometimes these vesicles broke out without any other previous indications of Infection.”

HODGES, by QUINCY.

Hodges also speaks of “ the appearances after Infection,”—“ the manner of Infection,”—“ the spirits’ Infection,” &c.

The latter uses of the word Infection, appear to come up more nearly to its proper meaning than any I have seen. And therefore, as it is but a thankless office to give words which have been in common use for centuries new significations, I shall confine myself to what I conceive to be the most approved acceptance of others.

When Dr. Short says “ the people, *upon their infection*, may be managed so and so,” he must mean—upon their being infected. That is, he uses the word to denote a peculiar state of the body. In this sense, therefore, Infection implies the first morbid effect of some contaminating principle.

And when Dr. Barker speaks of *augmenting the risks of Infection*, he must also mean, the risk of being infected. Consequently in this sense, Infection is not a cause, but an effect in an animal body.

But if the word in these instances seems in its proper place, it cannot be right to extend its use to a state of the air, or of houses, or of clothes, &c.; for as these are incapable of disease, so are they incapable of Infection, which is only the incipient state of a contagious disease. At the same time it must be admitted, Infection is a very obvious expression, sanctioned by long usage for the matter of contagion, or a vitiated air, or a state of infected goods; and a word long employed to designate a cause, is not easily given up to

signify merely an effect. Yet if we have another as good, there is no reason for retaining the former.

In fixing the precise meaning of words, their etymology should undoubtedly be considered, as Sir A. B. Faulkner has remarked. Etymology, however, is often obscure; and the vulgar acceptation of words is seldom changed out of respect to their Greek or Roman ancestry. But when a reference to such a criterion has no other effect, as in this learned physician's own case, than to make him use the words *Contagion* and *Infection* indiscriminately, it is clear, etymological research has not done much in establishing any material difference between them.

In Medical Dictionaries, *Contagion* is defined by "the subtile particles arising from putrid or other substances, or from persons labouring under contagious diseases, which communicate the disease to others." (Hooper's *Quincy*.) But this includes too much to be correct. In our best English authority, Johnson, it is "the emission from body to body by which disease is communicated:" a definition more simple and clear than the former. In almost all the best Latin writers in Medicine, *Contagium* and *Contagio* are the only words used to denote the effluvia or emanations arising in disease, which are capable of infecting the sound, whether mediately by the air or fomites, or immediately by the touch; and by metonymy sometimes used for the disease itself.

Consonantly with these views, it appears to me, therefore, that contagion should entirely be confined to that subtile matter, effluvium, or emanation (sometimes called contagious principle, particles or atoms) which

generated in the course of a distemper, and passing from a person diseased, whether by contact near approach or the medium of infected materials, and whether in a pure or vitiated air, is capable of producing a similar disease in one that is sound, or acting as an exciting cause in one already predisposed. Hence, the different kinds of Contagion and the different modes of their operation do not seem to warrant the use of different terms, as of *contagion* to some and *infection* to others.

To limit Contagion to the propagation of disease by contact only, would be to disallow the more comprehensive use of the term in our best authors.

Whether contagion is applied by the touch, or communicated by the air, or retained in goods to which the term *fomites* has been applied; it is still an animal secretion or poison, varying only according to the diseased action from which it sprung; and the name of the disease is always a sufficiently distinguishing character. Contagion therefore may be considered as a principle, independently of its effects. It may be passing from a body, though no other body is present to receive it; it may be received, yet produce no disease; it may be condensed on the point of a lancet, or it may be absorbed in clothes, &c.

There is no substantive from the verb *inficio*, except *infectus*, used by Pliny, for the dying or staining of wool—a process or effect, not an agent. I speak of the classic writers—for we have a spurious word in common use among our Latin medical authors, viz. *infectio*, that is applied in the sense for which I am arguing. So far, therefore, we have even the analogy of the Latin in favour of this meaning. Hence

I conclude it would be more correct to use the word *infection*, in the sense of an effect, rather than of a cause. If 'to infect' be 'to hurt by contagion,' or 'to fill with something contagious,' it follows, that *infection* should denote *the state of being infected* passively, and not *the power*. For it is reasonable that it should bear the same relation to the verb *infect* that *completion* does to the verb *complete*, or *motion* to *move*, or *union* to *unite*, or *desolation* to *desolate*; that is, a course of action induced, or change of things brought about by some agency or series of causes. For, otherwise we might say, the *completion completes*, or the *desolation desolates*, which would at least be tautological if not absurd. And yet the common usage of the word *infection* would authorize us in saying, *the infection infects*, a phrase that has no parallel in our language.

According to this view *infection* must always have reference to the human body, and it invariably implies contagion; but the latter does not always imply the former. For, *infection* may take place some time before contagion is formed; and contagion may be formed, if we give credit to some of our best writers, without any previous *infection*.

Thus, a person may be infected with variolous contagion, but it may be several days before contagion is generated in his system. And a fever produced from fatigue, unwholesome food, suppressed evacuations, &c. may be rendered contagious in its course by animal filth, impure air, close rooms, &c. But if *that* be called *infection* which is in a vitiated air, and *that* be also called *infection* which is the product of a malignant disease in such an air; then, according to this

phraseology, infection produces infection! a form of expression surely objectionable.

It is however correct to say, the contagion produced infection, or the contagion was applied, but owing to peculiarity of constitution, &c. it produced no infection. Variolous contagion may be inserted in the arm, or inhaled by the lungs; but it may not infect the constitution at all as to outward appearance. A person may be infected with the poison of hydrophobia many months before the symptoms of the disease appear. Therefore infection follows the wound, though its morbid influence is for a long time concealed. And in some cases there are signs of infection, though but few and slight marks of disease appear; as, for instance, variolous pustules, without the least indisposition in a mother who nurses her infant labouring under that disease; again, a trifling temporary derangement has been experienced by those attending the sick in Plague and scarlatina, remotely resembling the respective maladies, but scarcely to be denominated disease; a slight rash, or uneasiness of the throat, or pain in a part where a pestilential bubo had once been seated, occurring without any other symptom of indisposition.

Two things are, however, to be noticed; the one, that in the definition of contagion, the existence of some effluvia or subtile matter is assumed, distinct from a mere quality; and the other, that contagion may sometimes be ascribed to diseases whose contagious nature is disputed, as, for example, the Plague. This state of doubt is to be regretted, as in all definitions elementary principles should be universally acknowledged: but in both assumptions I rather build upon

opinions generally received among the most learned of the faculty, than upon individual exceptions.

I know not that there are any very sufficient reasons for assigning distinct meanings to the words *contagious* and *infectious*; which seem to have been generally regarded in all our medical and most other writings as convertible terms. If, however, there be grounds for distinction in the substantives, analogy will, perhaps, lead us to distinguish their respective adjectives.

Therefore, if contagion be a characteristic product of certain diseases, and have its primary origin from diseased action alone, the word *contagious* should always apply to such diseases, and not to things. And as this contagion has the power of infecting the human body, so it has the power of imbuing, not to say infecting, various substances. But, as the state of being imbued or impregnated with a poison is somewhat analogous to the state of a living body being infected with the same material; it does not seem incongruous to apply the word *infectious* to all substances capable of retaining contagion so as to produce infection. For, as a *contagious disease* is one which is capable of engendering contagion by a course of morbid action; so an *infectious substance* is one which is capable of retaining contagion, so as to renew and propagate this diseased action by infection. Hence, while the disease is properly contagious; the breath of the diseased may be infectious, the clothes infectious, the air around him infectious, because secondarily imbued with contagious particles.

But as there are persons not susceptible of infection, so there are substances which cannot be rendered

infectious. Now as, according to these definitions, nothing can be infectious which has not received its taint from a diseased animal body; it will be improper to say, the air is infected with marsh miasmata, or with impure exhalations from putrifying materials, or with effluvia simply arising from the concourse of persons in a dungeon, a ship, an encampment, or a crowded city.

But how far all these causes might co-operate with deficient or unwholesome food, exhaustion and depressing passions, and violent extremes of intemperature in the air, to produce a state of morbid action which might give rise to a mild or malignant contagion capable of truly infecting the atmosphere, is obviously another consideration: and it is well to keep these distinctions in view. For, it cannot be considered unimportant, to designate, in a correct manner, a state of air, partly produced by miasmata from the soil, and partly by animal effluvia, arising from a concourse of human beings in situations and seasons favourable to sickliness.

I am, however, ready to acknowledge, as before hinted, that I anticipate a difficulty in the prescribed use of all these terms: for some are unwilling to apply the epithet contagious to a disease which is doubtfully so; some who deny it, reject the term altogether, and every allusion to it; and others, partly admitting the fact, are yet anxious for a word which they think not quite so strong; and therefore content themselves with *infection*, as, according to their view, denoting a state of things, as of the sick, the air, and the clothes, in which the vitious exhalations of the human body bear but an insignificant part in the complex

action of morbid or disease-exciting causes. So that, of such diseases a person could not speak or write, without at once manifesting, by the terms employed, his conviction of their contagious, non-contagious, or ambiguous nature.

It is to be lamented that this is a difficulty inseparable from the imperfect state of our knowledge on these points, and would attach to the most correct phraseology that could be devised; as to clear the field for observation is not to add a single fact to the materials of science, though it may help a skilful arrangement. Besides all this, it is very possible I may be thought hypercritical, and that many will see no reasons for the distinctions I have proposed. However this may be, if I am warranted at all in laying the following pages before the public, I presume to claim the privilege, where so much confusion exists, of defining my own expressions, and of keeping, as nearly as possible, to one standard, that I may be clearly understood.

Since the preceding pages were written, it has been no small satisfaction to me to find that the definition of the word Contagion, in Rees' Cyclopædia, which evinces, if I mistake not, the correct observation of Dr. Bateman, concurs, as far as it goes, in the meaning I have assigned to the words *contagion* and *infection*.

It is there stated, "we are disposed with Dr. Wilson (Phillip) and others, to consider the word contagion as expressing the morbid poison, or the *means* of transferring a disease; and infection as expressing the operation of the poison, or the *act of communication* of the disease."

In the use of the word Epidemic I find a difference of opinion as to the propriety of its application to a contagious pestilence. But if Epidemic means a disease which attacks numbers at or nearly the same time ; which is observed to cease in one part as it falls upon another ; which in the course of a few months changes remarkably, not only in its symptoms, but in its degrees of malignity ; whether contagion be accessory or not to the propagation ; then, without question, the Plague is often entitled to such an epithet.

For if, on the other hand, Epidemic means exclusively a disease which derives its origin solely from the air, and attacks all persons in a limited district at one and the same time, there is hardly such a disease to be met with in history. For, an immediate stroke from Heaven, as upon the Assyrian army before Jerusalem, which probably occurred through the medium of a pestilential blast ; or the destruction of a caravan, by the Simoom, in the Arabian Desert, can hardly be so denominated.

The only facts which have a remote bearing, and perhaps may be reconciled with such a definition, may be traced in the accounts we have of the Influenza or epidemic catarrh, and the Ephemera Britannica, or sweating sickness ; which, although both accounted contagious, perhaps not improperly, were known to attack many hundred persons in a single night. Yet even these diseases never commenced a simultaneous attack upon every individual in a large community. So that, although a disease may have near dependence on a state of the air, both for its causes and propagation, it does not follow that it should affect all persons at the same time who are subjected to its in-

fluence. For this is contrary to fact; and therefore *epidemic* properly belongs to every disease which, whatever be its cause, finds, at particular times, great multitudes readily susceptible of its attacks, from some almost universal predisposition by whatever means induced.

To those who consider the locality of certain diseases, as of agues in fenny countries, the *plica polonica* in Poland, cretinism in the Alps, the goitre in Switzerland, the Guinea-worm on the west coast of Africa, &c. it will not be necessary to say any thing of the proper use of the word *endemic*.

But when Plague occurs in a situation and season unfit for its propagation; and in an individual, surrounded by those not prepared to receive it; and in characters distinct from what it assumes when numbers are affected, as in time of pestilence; then it is said to appear as a *sporadic* disease.

But, on the contrary, when season and situation conspire to promote it; when there is an apt disposition in the inhabitants of certain places to receive it; and when the disease itself exhibits characters never observed at any other time, having a beginning, height, and decline, from which, in the same place, it seldom varies more than a week or two; then its progress is attended by what has been called ‘*a pestilential constitution of the air*.’

I am aware, the expression, *Pestilential Constitution*, has been objected to on the ground of its involving the supposition of a latent undefined state of the air; which, it has been stated, is nothing more than a creature of the fancy. But, if we consider that the phrase is used to denote an ultimate fact, or that state of things when

the whole complication of causes, which conspire to originate or propagate pestilence, takes effect; it is not unphilosophical; and when such men as Hippocrates, Sydenham, Bacon and Russel, thought it necessary to take such a fact or principle for granted, I do conceive that we, of the present day, who have not witnessed what came under their individual observation, are not at liberty to reject it, because we cannot explain the cause. I therefore assume, that during the prevalence of every pestilence, there is a peculiar state of the atmosphere, which, whether it be called corruption, as it is by Mead, or pestilential constitution, as by others; whether it be the absolute or only the concurring cause; whether it be a principle or only a quality, is no more necessary to be known, in reasoning upon its effects, than a knowledge of the gravitating principle or power is essential to the proof of the existence of the law.

As my observations chiefly refer to the disease commonly termed Plague, in its epidemic character, I have thought the word *pestilence*, as used in the title, more appropriate to it in this state. It is to be regretted that the former expression, which applies to various calamities as well as disease, was ever admitted into medical writings; and still more to be lamented that a word, which carries with it so many fearful apprehensions in the public mind, should ever have been sanctioned by general usage. In the latter case, it may not be too much to say, it has struck thousands with terror and death; and, in the former, disputes about a name have, in all modern visitations, agitated the faculty with feelings unbecoming the members of a liberal profession, at a time when their whole energies ought to

have been directed to the duties of humanity. The controversies frequently maintained, whether Plague or malignant fever more properly belonged to such diseases, have not only been useless and reproachful, but highly injurious.

In the older writers we can trace nothing of the kind; and whatever was his reason, it is remarkable that Celsus never uses any other word than *pestilentia*, in the sense above stated; to which it seems proper to confine the English term *pestilence*, as being more definite, not to say classical, than *Plague*.

At the same time having no wish to innovate, I often use the word *Plague*, *Pestilence*, and *Epidemic Plague* indiscriminately, from the necessity of their frequent occurrence to vary the expression; but generally the first to signify a peculiar disease, without reference to its epidemic prevalence.

Of *Plague*, therefore, as a distinct malady, I know not a better definition, though many have been proposed, than, in few words, malignant fever, usually attended with the bubo and carbuncle. But there have been many *Plagues* without these symptoms; and the true *Plague*, in its most fatal form, often occurs without them. Yet, it must be admitted, that fevers, in the highest state of malignity, or when the causes capable of producing the most formidable mortality in a great mass of people, in the shortest period of time, are acting in co-operation, have, in most countries, a natural tendency to assume these peculiar marks.

CHAP. IV.

General remarks on the difficulties of the subject, and the mode of treating it.

IN casting a superficial glance over the histories of Pestilential epidemics, it is but too obvious that many things are involved in obscurity. And in this state of obscurity perplexing controversies have arisen. The subject itself may have afforded ample occasion for dissention; but many, as has been hinted by Boyle, have appeared more eager to refute their adversaries than they have shewn ability to support their own conclusions; or, I may add, than to reconcile the multitude of apparently contradictory facts which are constantly thrown before us. It therefore seems to be the wisest course to take that mode of ascertaining the truth, which we may suppose a person who had never heard of the doubts and difficulties would naturally adopt. Now, as regards the causes of Pestilence, or its means of propagation, the simplest mode of ascertaining the truth would be to take an accurate and comprehensive view, unbiassed by prejudice, of all the facts preceding and accompanying the pestilence itself; and to compare such facts with those of former similar events. I say, preceding as well as accompanying, because it is not reasonable to suppose the human body is *then* only immediately assailed by morbid causes when the outward signs first discover themselves, or always attacked with disease solely in consequence of the existing state of things; and that it is in no degree prepared or injuriously affected by the

preceding changes. For it is obvious that a long series of morbid actions may have been going forward, and a long series of hurtful causes in operation, of which the individual about to suffer may have been unconscious: As, in some constitutions, the period of alacrity and vigour is the very period which the medical philosopher pronounces to be ominous of danger, perhaps of mortal disease, though every feeling may denote the elasticity of health.

But if the causes and mode of propagation of pestilence are thus liable to be disputed, it must add greatly to the difficulty when we find the facts themselves, observed to be connected with pestilential periods, are likewise called in question: and even when their authenticity has not been doubted, the connexion has been denied, and treated as an absurdity; either because it was deemed too remote, or could not be satisfactorily explained.

In addition to these causes of error, the observations, even of enlightened men, have often been partial, and the same events differently reported; so that we can scarcely open a book where every particular observation is to be taken implicitly for granted; and few in which some contradiction may not be found between fact and opinion.

From an argument encompassed with so many difficulties, the admirer of pure inductive philosophy would naturally turn aside, as presenting but little of a substantial basis on which to build his conclusions. And certainly the difficulty will be much increased when all that an author can say must rest on the testimony of others.

I confess, therefore, in contemplating the formidable task I have attempted, with the many obstacles in the way, I am more disposed to accuse my own presumption than to promise that I can throw any new light on so dark and intricate an inquiry.

This, however, I can say with truth, that I have endeavoured to bring together, in as compact and concise an arrangement as possible, most, if not all, the general and leading facts belonging to pestilential periods. How much has already been done by others will be known to most of my readers; and yet I hope not to conceal the authors to whose intermediate labours I am indebted for some of the materials of my collection. Having had no opportunity of making personal observations on the plague or yellow fever, I have been led to consider that, unless the testimony of many respectable observers, in different ages, should coincide upon particular points, every attempt to prosecute the inquiry with success would be nugatory. I am at the same time fully aware of the disadvantage under which an author labours who builds a series of reasonings on the observations of others, however respectable. For the collection of such observations must necessarily cause a display of research that it is every way desirable to avoid. But, as facts must determine it, the argument will be strong in proportion to the number of its supports.

Yet among the causes which have partly reconciled me to the task, is the acknowledged truth, that in numerous instances, men of sagacious observation, who have possessed the most ample means of personal inquiry, in short, who have been present as eye-wit-

nesses during the rage of pestilence, to examine and prove every point, have arrived at conclusions diametrically opposite.

This, in my mind, is one reason among many for admitting the inference that personal observation is not more likely to lead to correct views than a calm unbiassed collation of testimonies, undertaken by those at a distance from the scene, who have neither fear to agitate nor prejudice to warp the mind.

Indeed, the objection alluded to might be urged, I need not say with how little weight, against the historian who presumes to unravel the intricate events of past ages, and to extract the truth from conflicting opinions, and from narratives apparently discordant. It is generally agreed that a more impartial history of any critical period may be expected from the writer, who, born in a distant age, is likely to know nothing of party contentions but by report, than from him whose passions, interests and friendships, may all be so mingled with his perceptions as to cause him to regard the series of passing events under a false colouring, or a distorted view.

Notwithstanding we have such a multitude of what are denominated facts, on the subject of contagion and epidemic diseases, as to occasion a serious difficulty in the selection; and in these facts such opposite bearings, as to induce many cautious inquirers to regard with suspicion all evidence of the kind; yet there is a description of fact connected with it, which, from its being admitted by both sides, must appear less liable to doubt and misrepresentation.

We may doubt whether corruption of the air or contagious effluvia produced a pestilence, or case of

individual infection; but we cannot reasonably doubt as to the mode in which an epidemic plague generally begins and ends, the victims it usually selects, the situations and seasons in which it is chiefly propagated, the changes its character undergoes in the course of a few months, the diseases which precede or follow it, the evidence from the Bills of Mortality, and many other circumstances quite unconnected with the disputed question of its contagious nature. Yet, it is hoped, a due consideration of the points that are admitted will help us better to understand those that are in dispute.

Now it is by no means surprising that obscurity should belong to a subject which relates to the agency of subtile effluvia or emanations, whose existence we can only infer from their effects. For as the same effects, at least in the human body, may result from different causes, a wide field is necessarily opened for contention.

The matter of contagion; and the changes or qualities in the air, which produce disease, are neither objects of our senses, nor has chemical art yet enabled us to detect their nature.

Hence, while some have maintained that a vitiated atmosphere has spread destruction among our species in the propagation of mortal diseases; others have ascribed the phenomena solely to contagion. A question involving considerations of more serious moment can scarcely be agitated, or one upon the right understanding of which so many interests are depending. Upon the statesman, the merchant, and the physician, it has peculiar claims; but every individual, of every class in the community, is more or less interested in

the inquiry. At all times it is of great importance to human society; but more especially when diseases of the doubtful and formidable nature alluded to are extending their ravages and spreading alarm in different countries. The year 1819, when the subject more immediately offered itself to my notice, was remarkable for the general spread of epidemic and pestilential diseases over the world, so as to engage the attention of persons not of the profession. Their unusual prevalence was announced from all the four quarters of the globe. India and the east and south of Europe, as well as the northern and western parts of Africa, were visited by the forms of disease peculiar to their several climates.

Across the Atlantic, nearly all the West India islands, with the adjacent shores of the American continent, about Demerara and New Orleans, were ravaged with pestilential fevers. Disease was so prevalent in the cities of the United States that the President thought it a subject not unworthy his attention in his opening speech to Congress.

Our own islands, favoured as they are by climate and the arts of civilization, partook, in degree, of the universal tendency. The year 1819, in most parts of Great Britain and Ireland, concluded the career of that epidemic fever, which, in the two preceding years, had been visiting almost every town and village of the United Kingdoms. A few places, however, witnessed its destructive effects so late as the spring of 1820, when a very fatal peripneumony and other alarming diseases appeared to terminate its progress in the metropolis of the empire.

In times of general disease, it may be always

matter of doubt as to the nature of remote and predisposing causes; but with regard to the existence of contagion in plague, and in our own most severe type of Fever, it is worthy of remark, that, in an age so noted for the number and accuracy of observers, while some consider it unquestionable, and presume they have so far ascertained its laws, as to fix the extent of its contaminating influence round a diseased body; and the period after exposure, within which it exerts the power of self-propagation; others are induced by the observation of a different train of facts to deny the principle altogether. On both sides of the question no small degree of pertinacity has appeared; and scarcely a greater reproach attaches to the profession, than from the present confused state of knowledge and conflict of opinion upon this subject. Nor is this reproach the whole amount of the evil. For if there be no contagion in Plague, Yellow Fever and Typhus, quarantine laws are absurd, and commerce needlessly burthened; the establishment of lines of circumvallation, guarded by cordons of troops, to prevent escape from infected cities, and the appointment of armed police to confine the diseased to their houses, among their yet uninjured relatives; are perverse and barbarous regulations: Besides, the fears so induced are as dangerous to the community, as they are pernicious in their effects to the common feelings of Humanity.

But, on the other hand, if the doctrine be true to the extent we have heard it stated, then the lives and liberty of the few must be sacrificed to the general good; municipal restraints cannot be too rigidly enforced, nor the conduct of those too severely reprehended, who inculcate opinions that would have a ten-

dency to increase the evil, by lulling the ignorant and unwary into false notions of security amidst surrounding danger, and making them even the intermediate agents of destruction to their neighbours.

We have therefore seriously to lament, as I before hinted, that most writers have attached themselves to this or that side of the argument so exclusively, as to strain the simple bearing of facts to their own hypothesis; to make a record only of these; and to keep out of view almost every circumstance of an opposite tendency. Hence, what contrary statements and marvellous, nay almost incredible recitals, do we find in authors, both ancient and modern, who have treated of this subject!

Contagion, according to some, has been locked up for years in holes and chests and caves; it has even made its hiding place a spider's web; and at particular times, as by mere accident, has been released from its imprisonment to desolate the Earth! According to others, comets and meteors, planetary conjunctions or appositions of baneful influence, volcanic eruptions and malignant blasts from the earth during its convulsions, have corrupted the air with pestilential steams for the destruction of the Human Species!

The first class have left us in ignorance by what laws the contagion ceased after its sources were so incalculably multiplied; and the last have not explained how a wide-spreading evil like the vitiated air still left millions untouched!

And these two predicaments would seem to include the principal difficulties of the argument.

One general fact should be noticed, that no people in the world have been willing to acknowledge their

own country to be the first or indigenous seat of pestilence.

Even Ethiopia, condemned beyond all others, the supposed nursery of plague from the time of Thucydides to Mead, where putrefaction is said to concoct and sublime its most deadly poisons, has its seasons and situations remarkable for salubrity, in which health cheers the native as well as the stranger; and authentic histories of that country by no means confirm the imaginary terrors of its climate; nor do they record any plagues so fierce and destructive as what more temperate regions have often experienced. For those who have resided and travelled in Upper and Lower Egypt, as Alpinus, Savary, Volney, and others, so far from admitting that plague is indigenous, gravely tell us of its importation from Constantinople and the coast of Syria.

After what has been said, it would, I conceive, be an endless if not unprofitable task to produce the various histories which are commonly referred to in support of their respective opinions, by the contagionists and their opponents, and urged with no little zeal, as demonstrative proofs of each other's errors. I shall therefore content myself with the simple admission, that, independently of all that fear or superstition or compliance with established rules of state-policy, or love of the marvellous or self-opinion may have engendered as the immediate causes of Plague, many of these recitals, both of infection and non-infection, may possibly be true. It strikes me forcibly in addition, that no one who reads with impartiality these seeming opposite accounts of Infection, and immunity from Infection, by the plague, &c. can reasonably refuse

his belief to the respectable testimonies on one side more than to those on the other. Upon this point, therefore, it seems necessary for me to come to some conclusion at the outset.

I must however remark, that there appears to be good reason for doubting most of the stories which terror and ignorance have been ever ready to suggest and propagate as the cause of pestilence: and perhaps the advocates for the doctrine of contagion exclusively, have been more prone to error on this point even than their opponents.

But as I shall take it for granted, that the Plague, and some other forms of pestilential fever, are in their nature capable of producing contagion; or more clearly, that a person labouring under the plague may actually generate a contagious matter, effluvium or emanation, which, under certain circumstances, may communicate a similar disease; so I cannot but believe that under other circumstances, the same disease may be approached with impunity; and if it has then the power of generating a contagious matter, that the latter is of so mild and diluted a character as to be innoxious even to the majority of those fully exposed to its influence. In short, I am necessitated to conclude, the disease is sometimes contagious and sometimes, nay frequently, manifests no such property.

How far this may agree with our common notions of contagious diseases, I shall not stop to inquire; but if it be strictly the fact, it is very clear that our received dogmas cannot alter the nature of things.

By the admission I have just made, the field of observation will be much contracted; and I shall not have to weary my readers by retailing the multitude of pre-

sumed facts on either side, which are reiterated in almost every book we read on the subject.

The evidence on these points appears to me nearly balanced. Hence it would be as unphilosophical to build a series of general reasonings upon one set of facts as upon the other: and therefore the only way of reconciling such apparent contradictions, is to suppose a difference in the contagion itself as to its degrees of power at different times; or of predisposition on the part of the exposed, the contagion remaining of equal force; or a change in the qualities of the general medium through which it is conveyed, namely, the atmospheric air, conformably to the suggestion of the French physicians, who reported on the work of Assalini; or lastly, to suppose that the plague, formidable as it has often appeared, is only the creature of circumstances, of indigenous origin, and possessed of a temporary and perishable contagion, analogous to that of some other febrile diseases, as dysentery, camp and jail fever, &c.

Hence, whatever may be the cause of so much diversity, it is a matter of the greatest importance to consider maturely the circumstances alluded to, under which effects so opposite take place. For, if these circumstances make all the difference between the mild and malignant character of the disease, and between the greater and less degrees of its contagious power, they are of as much, perhaps more importance than the contagion itself.

Dismissing therefore for the present all inquiries into the cause, in a case of so much doubt, I shall adopt the simple method of attending to the circumstances, if they may not be termed laws, according to

which the cause, whether contagion or atmospheric influence unitedly or separately, appears to act.

With a wish therefore to exclude all prejudice from my mind, I have thought it worth while to bring together a number of leading facts, connected with some of the later pestilential periods, of which we have any authentic records; and to deduce a few general observations, chiefly on the Plague, with regard to the mode of its origin, decline and propagation. I should gladly extend my views to other forms of epidemic pestilence, as the yellow fever of America, and the cholera morbus of India, &c. knowing, the principle would be much illustrated by a comparison of the Phenomena; but the inquiry would be far too comprehensive. There may indeed be something humiliating in the task of a mere compiler; and yet the concurring observations of many eminent Physicians in different ages and countries must be considered of some weight and no small utility, in elucidating the obscurities in this branch of Medical Science.

For, if any thing could bring us back to the right way of investigation, it would be a simple account of all the phenomena attending such diseases.

At the same time, it will be better to run the risk of putting down events which may have no connection, than to omit any thing in the most remote degree accessory to the cause.

The causes of pestilence may be various, and there may be many accessaries. I would not therefore have it supposed, that in recording any concomitant event, I am inclined to lay more stress on that event than justly belongs to it, either as a subordinate or principal agent.

When the events attending pestilential periods are much varied, it necessarily follows, that the difficulty of fixing on the principal cause is increased. But this is acknowledged to be so much the case, and pestilence has been said to occur in such contrary states of things, that, as I have hinted before, on the one hand a latent principle in the air, and on the other a contagious virus equally invisible, have been had recourse to, in order to explain the difficulty.

I wish however to premise in the outset, that I am not anxious to refer the origin of plague to any one circumstance which I am to notice; and therefore request a patient attention to the whole before any opinion is pronounced. In short, I have thought it right to take up the subject, as if contagion had never been heard of. There is perhaps a greater combination and variety of causes concerned than we usually apprehend. And I suspect inquirers have erred, by fixing too decidedly on any one event in the chain; as though the cause was of a more tangible nature than we can hope to discover. We are naturally fond of certainty; and when it cannot be attained, many cherish their favourite opinion, though it may be nothing more than hypothesis, with as much tenacity, as if it were an established theorem.

Conformably to the preceding view, I conclude it will be proper to take for an example some epidemic Plague, to trace it through its progress, and as far as my plan will admit, to compare it with others. I shall therefore select, as not least in interest, the last plague of London, in the year 1665. The period is indeed happily remote since that awful visitation. But as the nature of our institutions presupposes a constant liabi-

lity to such an event, it is of importance that we should ascertain precisely the circumstances under which it took place; either as they may relate to a more perfect knowledge of the true cause, or to a better preparation against a similar calamity.

I propose therefore to combine some particulars relative to that memorable event, which are dispersed in different writings, in a brief medical narrative. These scattered materials appear to me the more valuable, because they seem to have been mentioned casually; and for that reason are less likely to have been distorted than if they had been placed in a prominent situation, for the avowed support of any set of opinions. I would also remark, that almost every fact I am to notice is taken from authors who are inclined to credit the rumour, that a foreign contagion produced the mischief.

And as it is my object simply to detail the few facts which may aid us in forming a basis for medical reasoning, I have refrained from any attempt to delineate those moral features of the calamity, which must naturally occur to every one who contemplates the scourge of Pestilence in its formidable effects upon the inhabitants of a great city.

The general alarm and the individual suffering; the silence of the grass-grown streets; the thousands of human bodies, carried in heaps, many of them unceremoniously to a common grave, without any of the decent rites of sepulture; the despair of some, the religious prostration of others, the depravity of many on the very verge of eternity; the benevolence and fortitude of the few; the mutual charities of kindred broken sometimes by unnatural fears, even before the

final separation; the dread of death and suspicion of danger at the sight of every friend; the inefficacy of art; the more than doubtful cruelty of some of the police regulations; the universal horror and the uncontrollable devastation; all these and many more such occurrences at the height of the calamity, afford ample room for reflections, and are calculated especially to excite profound humiliation, awful reverence, and the workings of all the common sympathies of our nature.

But to describe the accumulated miseries of that event, even if I were equal to the task, would only divert the attention from a sober review of its incidents, as a medical phenomenon. I have therefore contented myself with a plain description, made up of selections from different writers, nearly in their own words, instead of compiling a uniform narrative of my own, that might perhaps be deficient both in the energy and truth of my authorities. For we can hardly change an expression without changing in some degree the view which the writer whom we quote might have originally entertained.

In the following sketch, I propose to consider—1st. The adventitious circumstances—2nd. The progress of the disease from one part to another—3rd. Its character at the beginning, height, and decline—4th. The exemptions—5th. The facts deduced from the bills of mortality—6th. Summary view.

CHAP. V.

THE PLAGUE OF LONDON.

I. "THE winter of 1664-5, preceding the Plague, was extremely cold and severe, accompanied with hard continued frost, which lasted three months."*

"There had been a great mortality among cattle from a very wet autumn, whereby their carcasses were sold amongst the ordinary people at a very low price."†

"The city and suburbs were prodigiously full of people at the beginning of the visitation; the wars being over, the armies disbanded, and the royal family and monarchy restored, so that the town was computed to have in it above 100,000 inhabitants more than it ever entertained before, some said twice as many: so that the plague entered London when an incredible increase of people had happened occasionally by particular circumstances."‡

"During the time of the Plague, there was such a calm and serenity of weather, as if wind and rain

* Sydenham. † Hodges's Loimol, 58. ‡ Journal by H. F. 22.

had been both banished the realm—for, for many weeks together, says Dr. Baynard, I could not observe the least breath of wind, not enough to stir a weather-cock or vane; if any, it was southerly. The fires with great difficulty were made to burn, I suppose, adds he, through the great scarcity of nitre in the air; there fell abundance of mildews, and the very birds would pant for breath, especially crows, kites, &c.; and I observed them to fly more heavily than at other times.”*

“It was a very plentiful year of corn; and all sorts of fruits were in prodigious abundance, as plums, cherries, apples, peaches, grapes,” &c. †

“I cannot, says Hooke in a letter to the celebrated Boyle, *from any information I can learn, judge what the cause should be*, nor can I imagine it to be in the air, though yet there is one thing which is very differing from what is usual in other very hot summers, and that is, a very great scarcity of flies and insects, I can hardly imagine there is a tenth part of what I have seen other years. I know not whether it be universal, but it is here at London most manifest.” ‡

“The long severe frost went off suddenly towards the end of March. There then arose peripneumonies, pleurisies, and other inflammatory disorders, which quickly made great devastation; and Sydenham states, “that he never knew them more common than they were for some weeks preceding the beginning of the plague.” “With these there also appeared a continued epidemic fever, of a very different kind from those of

* Baynard on Cold Baths, p. 232. † Journal by H. F. 256.

‡ Boyle's works, vol. v. p. 543.

the foregoing constitution; viz. those which prevailed from 1661 to 1664, which usually seized scarce any body at that time of the year." "This fever continued to spread till the middle of the year, when the plague appeared, accompanied with its proper symptoms." *

After enumerating the diagnostic signs of this fever, as violent head-ach, copious vomiting, diarrhæa and delirium with parched skin, burning fever and oppression at the chest, Sydenham adds, "Whether this fever deserves to be entitled the plague, I dare not positively affirm; but this I know by experience, that all who were then seized with the true plague, attended with all its peculiar concomitants, and for some time afterwards in my neighbourhood, had the same train of symptoms both in the beginning and through the course of the disease." Yielding to the solicitation of his friends, this eminent Physician left the city, but returned to town soon after, and whilst the plague raged violently; and he observes, "I attended several persons in fevers, which to my great surprise, I found were of the same kind and nature as those I had so successfully treated before my departure." †

And as it preceded the plague, so, on its decline, "this fever re-appeared, prevailed all the subsequent year, and continued to the spring of 1667—for, the fevers which prevail for a year or two after a severe plague are generally pestilential; and though some have not the genuine signs of the plague, yet they are much of the same nature, and require the like treatment." ‡

* Sydenham, by Swan, p. 73, 81. † Ib. 91. ‡ Ib. 74, 76.

II. I will now trace the progress of the plague itself more particularly, as far as we have the means of determining by the weekly Bills and the Journal of H. F. Though, I must observe, that if other diseases were prevailing at the time, as the spotted fever, with which it might be confounded, and if the plague at its commencement appeared without the bubo and carbuncle in the spring, the difficulty of discrimination must have been great.

In the latter end of November, or the beginning of December, two men, said to be Frenchmen, died of the plague in St. Giles's, at the upper end of Drury-Lane. About three weeks after, another man died in the same house of the same distemper.*

In the middle of the Christmas holidays, Dr. Hodges says, he was called to a young man in a fever, who after two days' course of alexiterial medicines, had two risings about the bigness of a nutmeg, one on each thigh: he pronounced it the plague. The young man however recovered. But how he caught the disease, or where he lived, we are not informed.†

About the 12th of February, six weeks after the last death, another died in another house, in the same parish, in the same manner.‡

Now it was observed, and the fact is very curious, which the weekly Bills of Mortality place beyond a doubt, that "from the time the Plague first began in St. Giles's, the ordinary burials from other diseases increased considerably in number in that and all the adjacent parishes."§ "For, while there was no men-

* Journal, p. 2. † Quincy's Hodges, p. 5. ‡ Journal, p. 3.

§ Ib. p. 3, 4.

tion of the plague in the weekly bills, and no increase for a time after it had been mentioned; yet it was apparent, that there was an increase of those distempers which bordered nearest upon it; for example, there were 8, 12, 17 of the spotted fever in a week, when there were none or but very few of the plague; whereas before, 1, 3 or 4, were the ordinary weekly numbers of that distemper. And the burials increased weekly in that particular parish and the parishes adjacent, although there were none set down of the Plague.*

It would appear from this account, that the inflammatory diseases and fever mentioned by Sydenham and Hodges must have fallen upon these parts first with the greatest violence. But the names of diseases in the Bills of Mortality at that time are so unscientifically stated, that it is impossible to ascertain the fact correctly.

It was not however till the beginning of May, or five months after the supposed introduction of fomites into St. Giles's, that a case of death or even of infection was reported to have taken place within the walls of the city. This occurred in Bearbinder-Lane. It was found on inquiry, that this was a Frenchman, who, having lived in Long-Acre, near the infected houses, had removed for fear of the distemper, not knowing that he was already infected.†

We might suppose, that this individual would have spread the contagion of so formidable a malady round him in every direction. But it appears on the contrary, that till the second week in June, or nearly

* Journal, p. 238. † Ib. p. 8.

seven weeks after the death just noticed, the city continued free, "there having never died any of the Plague, except that one Frenchman, within the whole ninety-seven parishes. Southwark was entirely free, having not one yet that died on that side of the water."

But now there died four within the City, viz. one in Wood-Street, one in Fenchurch-Street, and two in Crooked-Lane.

We may notice here the distance between the points of this triangle, as well as the distance of each point respectively from the original central focus in Bearbinder-Lane. "The weather had just set in hot; and from the first week in June, the mortality increased in a dreadful manner." "The second week in June, the parish of St. Giles, where still the weight of the distemper lay, buried 120, whereof the bills said 68 of the Plague. The mortality soon increased to double and treble that amount: till about the middle of July, the disease, which had chiefly raged in the parishes of Giles, Andrew, Stephen, and towards Westminster, came to its height there, and began to travel Eastward."

It was observed, indeed, that it did not come straight on towards the east; for the City was pretty healthy still: for, though there died that week 1268 of all distempers (and 300 was the usual weekly number,) whereof it might be supposed above 900 died of the Plague; yet there were but 28 in the whole City within the walls; and but 19 in Southwark, Lambeth parish included; whereas in the parishes of St. Giles and St. Martin in the Fields alone, there died 421.

"But the disease kept chiefly in the out-parishes, which being very populous, *and fuller also of poor,*

the distemper found more to prey upon than in the City: and it approached the east by the parishes of Clerkenwell, Cripplegate, Shoreditch, and Bishopsgate; which last two parishes joining to Aldgate, Whitechapel, and Stepney, the disease came at length to spread its utmost rage and violence in those parts, even when it abated at the western parishes where it began.”*

“And it was a merciful disposition of Providence, says the writer of the Journal, that as the Plague began at one end of the town first, so it proceeded progressively to other parts, and did not go eastward till it had spent its fury in the west; and so as it came on one way, it abated another.†”

For the northern parishes were next visited, before it fell upon the City; and the same proportion was observed in the increase and decrease of the weekly bills, under the head Other Diseases, between these parishes and the eastern as between those and St. Giles; so it was between the City and the East and Southwark; in which latter places they flattered themselves they should remain secure, for a long time after the mortality was very considerable in other parts. Yet it did not reach to the eastern parts, at least to be violent, till the beginning of August.

“But the latter end of July, it increased prodigiously in Cripplegate, St. Sepulchre’s, St. James’s, Clerkenwell, and St. Bride’s and Aldersgate: and while it was in all these parishes, the City and all the parishes on the Southwark-side of the water, and all Stepney, Whitechapel, Aldgate, Wapping, and Rat-

* Journal, p. 18

† Ib 214.

cliff, were very little touched. Even when the north and north-west suburbs were fully infected, viz. Cripplegate, Clerkenwell, Bishopsgate, and Shoreditch, yet still all the rest were tolerably well.”*

“From the 25th of July to the 1st of August, there died more of all diseases in the two parishes of Cripplegate and St. Sepulchre by 48, than all the City, all the East suburbs, and all the Southwark parishes put together; and this continued till the latter end of August. But then the case was quite altered. The disease abated in the west and north-west parishes, and the weight of the disease lay in the City and the eastern suburbs, and the Southwark side.”†

About the 10th of September, the disease came to its height, at which time, according to a reasonable calculation, more than 12,000 died in a week, though at least two-thirds of the inhabitants had retired into the country.‡ “The city and other parts where the weight of the disease now lay was, notwithstanding, exceedingly crowded; and perhaps the more so, because people had for a long time a strong belief that the Plague would not come into the City, nor into Southwark, nor Wapping, or Ratcliffe at all.”

“It now killed in two or three days, and not above one in five recovered; or four in five died.”

“But after this period, when the disease was on its decline, it did not kill under eight or ten days, and not above two in five died.” So that it was calculated by Doctor Heath, that there were not fewer than 60,000

* Journal, p. 214. † Ib. 216. ‡ Vide Sydenham, Hodges, and Journal, p. 218.

people infected in the last week of September, of whom near 40,000 recovered. For the plague being come to its crisis, its fury began to assuage, and accordingly the Bill decreased almost 2000 that week. "For, had the mortality been in the same proportion to the numbers infected, as at the height, 50,000 would very probably have died instead of 20,000, and 50,000 more would have sickened; for, in a word, the whole mass of people began to sicken, and it looked as if none would escape, as not one house in twenty was uninfected."*

"Just then, says the writer, it pleased God, by his immediate hand, to disarm this enemy. Nor was this by any new medicine, or new method of cure discovered; the disease was enervated and the contagion spent. Even the Physicians themselves were surprised:—wherever they visited they found their patients better; either they had sweated kindly, or the tumours were broken, or the carbuncles went down and the inflammation round them changed colour, or the fever was gone, or the violent head-ache assuaged, or some good symptom was in the case; so that in a few days, whole families that expected death every hour, were revived and healed, and none died at all out of them." Yet it appeared that more people fell sick then, when not above one thousand died in a week,† than when five or six thousand died in a week.† For, according to Hodges, "before the number of the infected decreased, the malignity of the disease began to relax; so that few died, and those chiefly such as

* Journal, p. 219 and 259.

† Journal, pp. 284, 265.

were ill managed ;” and, it may be added, those who had recently arrived from the country were then the chief sufferers. In the beginning of November, says he, people grew more healthy; and many came into the city without fear, so that in December they crowded back as thick as they fled; and such confidence was now inspired, that many went into the beds where persons had died, before they were even cold, or cleansed from the stench of the deceased—for the nature of the disorder was changed.” But there is little doubt, that although many escaped, a number suffered from this imprudent haste.* “ For, upon the notion spreading that the disease was not so contagious as formerly, and then not so mortal, the people grew so regardless that they made no more of the Plague than of an ordinary fever—nor indeed so much: and went boldly into company with those who had buboes and carbuncles upon them, ate and drank with them, and into their very chambers and beds where they lay sick. The Physicians at first opposed this thoughtless humour of the people—but it was to no more purpose to talk to them than to an east wind: for they opened shops, did business, and conversed with any body that came in their way; and though many escaped, yet many died.” “ Indeed,” says the writer, “ we were no more afraid to pass by a man with a white cap upon his head, or a cloth wrapt round his neck, or with his leg limping, occasioned by the sores in his groin—all which were frightful to the last degree but the week before.”†

* Hodges, pp. 26, 27; and Journal by H. F. 284, 286.

† Amongst the memoranda of Sir John Evelyn we find the

“ The Pestilence, in the words of Hodges, did not stop for want of subjects to act upon, as then commonly rumoured ; but the decrease was like the increase, moderate—and as at the rise of the distemper all other diseases went into that ; so, at its decline, that degenerated into others, as inflammations, dysenteries, quinsies, small pox, measles, fevers, &c.—wherein that also for a time predominated. But, as before observed, *the nature of the disorder was changed.*”

With regard to the spreading of the disease in the country, it is not to be doubted that many carried it with them from the metropolis ; and sickened and died in the towns and villages ; for, in spite of all the caution, there was not a town of any note within ten or twenty miles of the City but what was more or less infected : some parts as violently as London had been.*

The cities also of Norwich, Peterborough, Lincoln, Colchester ; indeed, first or last, all the considerable places in England were visited, more or less, and the kingdom of Ireland in some places, but not so universally. Oxford we are told escaped, although in consequence of the court and assizes being held there, a constant intercourse was maintained with the metropolis.†

following, under date Oct. 11, 1665. “ Went through the whole City, having occasion to alight out of the coach in several places about businesse of money, when I was environed with multitudes of poore pestiferous creatures begging almes, the shops universally shut up, a dreadful prospect !”—Vide Memoirs.

* Journal, p. 176. † Adams on Epidemics.

I can only meet with one instance of a considerable town in England being visited with the Plague about the same time with London in the year 1665—namely, Southampton. The fact seems to have escaped most writers who have treated of the subject; and yet according to Hooke, in a letter to Boyle, before quoted, the disease was laying waste that city as early as the beginning of July in that year. It is well known that all the other distant parts were attacked in the following year. It is therefore very remarkable that we should not have some authentic document to prove in what manner the disease was at so early a period introduced into Southampton, if it was entirely dependent on contagion for its propagation.

While the Pestilential fever was prevailing in London in 1666, the Plague, which had spent its fury in the metropolis, was visiting the country. But, in what form the disease appeared in different places, whether in what are termed its specific characters, or merely as the malignant pestilential fever of Sydenham; or what diseases preceded or followed it, we have now no means of determining. We are, however, assured, that in whatever place it raged, or by whatever means, or at whatever time introduced, it had spent its rage all over England by the end of the year 1666. So that if a fit constitution of air was necessary as well to receive and propagate, as to destroy it, which Mead acknowledges, it is very clear the country shared equally with the city, though progressively, in the poison and its antidote. For, contagion did not outlive that period in the country. But, judging from the Bills of Mortality, it was not wholly extinct in London till the year 1680.

It may not be superfluous to notice that as intermittent fevers, with a peculiar species of continued fever, somewhat analogous, were almost the only prevailing epidemics in London, for many years previous to the Plague, and in some years very fatal; so we are informed by Sydenham that the constitution of the air, and the nature of the reigning diseases, underwent such an entire change after that period, that from 1664 to 1678, including the space of thirteen years, intermittent fevers were in a manner extinct in the city, excepting only that they prevailed a little in the beginning of 1671, or seized a few sporadically, or were by accident brought with them from the country. And autumnal intermittents, very frequent to the year 1665, scarcely appeared at all afterwards. But, during the year 1666, the pestilential fever prevailed—and was followed by the small pox, continued fever termed variolous, and dysentery in succession.*

Several other circumstances remain to be noticed relative to this event, which I shall have occasion to advert to in their proper places. Studying brevity, I have thought this sketch may suffice; as we shall find abundant matter for consideration will arise out of the facts already stated.

III. I come now to speak of the symptoms and character of the disease at its origin and decline. On this head I could have wished we had more precise information. Hodges only mentions that the disease varied according to the season; but Sydenham has thrown out a few observations which are to the purpose.

* Sydenham, p. 14, 72, 144,

The Plague, he states, sometimes occurred without any perceptible fever, and proved suddenly mortal; the purple spots, which denoted immediate death, coming out all over the body, even while the persons were abroad about their business. "It is worth observing, he adds, that this hardly ever happened but in the beginning of the Plague, *and never in its decline, nor in those years when it was not epidemic.**" And again, "when the disease is possessed of the highest degree of subtlety, it suddenly destroys the patient, as is manifest in the beginning and height of an epidemic constitution."

It may be likewise gathered from this author, that it was not till towards the middle of the year the Plague appeared, with its peculiar symptoms, as carbuncles, buboes, &c.

The usual symptoms were shivering, vomiting, violent head-ache, diarrhæa, oppression at the chest, burning fever, buboes, carbuncles, petechiæ, vibices, tokens, hæmorrhage, coma, vertigo, delirium, &c.

"Sometimes swellings appeared without having been preceded either by fever or any other striking symptom. Such as were attacked in this favourable manner followed their business, as if they were in health."†

Dr. Hodges has distinguished three classes of symptoms, or varieties of the disease, but has not referred them to any particular time. The two first classes are those of malignant fever—yet he assigns them to the Plague.

* Sydenham, Chap. II. † Sydenham, p. 78, 79.

Dr. Russel, I may remark, considers it of the utmost practical importance to note carefully the varieties which an epidemic Plague is apt to assume in the different stages of its career; in other words, in its beginning, height and decline. I shall therefore avail myself of his observations, in attempting to elucidate this point, when I come to speak more particularly of these various characters; as they have been the source of much doubt and contention in all Plagues, especially at the beginning.

I am, however, inclined to think that the first class of the three mentioned by Sydenham occurred more at the beginning of the Pestilence, and was more rare, but more fatal; the second more general throughout the whole course; and the third chiefly at the decline.

IV. As to the cases of exemption, it was a tradition that tanners and oil-sellers escaped the disease.* Hence it is recorded that Bermondsey was free, on account of the number of tan-yards in the neighbourhood—and I am informed a tradition exists that Gutter-lane, in the City, was very slightly visited, in consequence of a tan-yard in the vicinity—that lane being chiefly inhabited by saddlers or *guthrin* makers (from which some deduce the present name).

Dr. Baynard states, that the bargemen and watermen were rarely infected, and that only two persons died in the houses on London-bridge. Fishmongers

* Dr. Maclean, vol. i. p. 272.

were generally healthy, he supposes, from their dabbling in cold water.* Quincy refers particularly to the exemption of watermen.†

Bucklersbury, though in the heart of the City, kept free, it is recorded in the City Remembrancer: and the reason assigned for it is, that it was chiefly inhabited by apothecaries and druggists, the odour or effluvia of whose drugs were supposed to correct the pestilential miasmata.‡

So general was the impression among the citizens that they should be safe on the water, nearly ten thousand persons betook themselves to ships and barges, moored in lines, down the river; and, we are told, they lived many weeks very safe and very easy.§

It was also observed that, notwithstanding the violence of the disease in the City, it was never on board the fleet—although for some time in the beginning there was a press for seamen in the river, and even in the streets, to man the fleet.||

“It was well known that the shipwrights yard, at Blackwall, was free from the Plague during the whole time, where a multitude of men were daily employed; yet not one man among them all had the disease.” This exemption was attributed to the constant fumes of pitch and tar, and to the fires of sheathing boards and other parts of old shipping impregnated with these substances.¶

* Baynard on Cold Baths. † Quincy's Hodges. ‡ City Remembrancer, 133. § Journal, p. 129. || Ibid, p. 281. ¶ Plague no Contagious Disease, p. 36.

It was also said the dealers in pitch and tar, as well as in tobacco, escaped the disease.*

The Dutch merchants, we are told, who shut themselves up, near Drapers' Gardens, were not attacked with it.

V. I shall conclude this sketch with a few observations on the Bills of Mortality and a summary view.

Imperfect as they are acknowledged to be, both in regard to numbers and names of diseases, more especially in pestilential seasons, it is at the same time admitted by Dr. Heberden that "the agreement of these Bills with each other does alone carry with it a strong proof that the numbers under the several articles are by no means set down at random; and that such registers, taken together and considered on an extensive scale, must be allowed to constitute a very unexceptionable basis for medical reasoning."—Heberden's Observations, pp. 1 and 29. The remarks that I shall offer will naturally refer to the Plague of London; and, to illustrate the subject, I have subjoined a few tables.

It appears, in the first place, that there was an increase in the general bill, for the year 1664, of nearly 3000 deaths over the number of the preceding year, or one fifth more; but a decrease is observable in the deaths, under the article Plague, for the four years immediately preceding the year of the Plague. A decrease is also observable for two years prior to that of 1625; and for four years preceding 1636 only nine deaths appear.

* Dr. Thomas's Practice of Physic,

They stand thus :

Died of the Plague in	1661	20	1623	17	1632.....	8
	1662	12	1624	11	1633	—
	1663.....	9	1625....	35,417	1634.....	1
	1664.....	6			1635	—
	1665....	68,596			1636....	10,400

So that, if the observation be not insignificant, prior to all the three years, the Plague had gradually retired, or given place to other diseases, or disappeared, as in 1635, only to return with greater violence.

It is also to be noticed that there are only three years, viz. 1629, 1633 and 1635, from 1603, when the registers of deaths began to be regularly kept, to 1665; in which some death by the Plague is not recorded. Consequently, the disease was become almost vernacular. And if we peruse the History of London, during the fifteenth and sixteenth centuries, we shall have reason to think, from the frequent recurrence of Plague, either that it was annually imported, or that the causes producing it were continually in operation; which latter appears by far the most probable supposition—Vide Heberden's Observations, pp. 1 and 29.

But the most striking fact remains, relative to the corresponding mortality from *other* diseases, during the Plague-years above-mentioned, particularly 1665.

The increase and decrease the year before and after the Plague are very remarkable, as exemplified in the following table.

TABLE I.

Shewing the number of Deaths from other Diseases besides the Plague, in 1625, 1636, and 1665, with that of the year before and after respectively.

Years.	Common Diseases.	Plague.	Total.
1624	12,199	11	12,210
1625	18,848	35,417	54,265
1626	7,400	134	7,534
1635	10,651	—	10,651
1636	12,959	10,400	23,359
1637	8,681	3,082	11,765
1664	18,291	6	18,297
1665	28,710	68,596	97,306
1666	10,840	1,998	12,838

Here it may be noticed, that the years 1626 and 1637, each following a Plague-year, give us the usual average of mortality. Therefore, a comparison with the year immediately preceding the Plague will shew the surprising increase of deaths from other fatal maladies which ushered in this disease; clearly proving an increasing mortality independent of the Plague, or at least the superior healthiness and exemption of the years next ensuing. Perhaps this comparative exemption may be ascribed to the reduced numbers of the City by the previous deaths. But Major Grant is not disposed wholly to admit this explanation; as, he says, London generally recovered its population very soon

after the ravages of pestilence; which the Bill of Christenings would, perhaps, indicate more decidedly. There is a falling off of less than 1000 in the christenings of the year 1666 compared with 1665—but a most disproportionate falling off in the deaths of 1666 by common diseases; the difference being nearly 18,000; and even the mortality of 1664, by diseases independent of the Plague, exceeds that of 1666 by more than 7000.

There is a difference of 6575 between the Christenings and Deaths in the year 1664; and only a difference of 3741 between them in 1666. But the difference between the Christenings only, in these two years, is as 11,722 in 1664 to 8997 in 1666, or 2725; while the difference between the Deaths is 5559. Therefore the causes of death were in more active operation in the year 1664, preceding the Plague, than in the year 1666, immediately following it; though 1998 died of the Plague in the latter year, and only six in the former.

It is supposed by some that many of the Deaths in the years 1625, 36 and 65, in the article of Common Diseases, belonged to the Plague. As a striking increase is manifest in all three, the same remark must apply to all. But, though such an error may have obtained, in some degree, there is so great a coincidence, as to lead us to infer an approximation to the truth in the Bills, as they now appear, and scarcely to admit of a doubt that a considerable increase of mortality from common diseases did actually take place, independently of the Plague.

It is indeed a singular fact, that in the year of the Plague, 1665, we have 10,000 more deaths, by com-

mon diseases alone, than in 1664; and about 18,000 more than the whole mortality of 1666, which, nevertheless, includes 1998 of the Plague.

So, if no fresh contagion had been imported (arguing for a moment upon the supposition of its Dutch origin), there would have been a most unusual and alarming increase in the yearly Bill.

But it is to be remembered, that in whatever part of the City the violence of the disease fell, there we have reason to think that it became for the time the ruling Epidemic, and, according to general observation, absorbed all the minor maladies, *except those having an affinity with it*. Therefore, unless it can be shewn that these were nearly all cases of Plague, in the three pestilential years alluded to, instead of common diseases, which, in my opinion, it would be too much to assume; and if it be the nature of Plague to controul the propagation of common diseases; it is very clear that without an imported virus, the mortality from common diseases, under all the circumstances, must have exceeded the registered number.

But we are further to consider that it is the nature of every malignant epidemic fever, which, it is known, in a milder form, prevailed the preceding year; whenever it appears early in the season—as the pestilential fever of Sydenham did in the spring of 1665 without the bubo and carbuncle—as a matter of course, to go on increasing in malignity and danger till its crisis or *arxun*, is attained in the autumn. Consequently, under every view, the mortality would have bordered on pestilence, though no characteristic symptom of Plague had discovered itself; and therefore the con-

tingency of imported contagion may be less necessary to the tragedy than is commonly supposed.

But, even admitting that the presence of an old specific contagion was a *sine qua non* in the production of this calamity; the Bills of Mortality, for a series of years, evince that the contagion was not extinct, or at least that it was so recently active and so many years preserved in different parishes, as to lead to the reasonable supposition that it was not extinct, at the time the *suspected*, and, if I can judge from contradictory statements, the *imaginary* goods were opened in Drury-lane; unless it be presumed that a fresh-imported sample of Dutch contagion was more virulent in its nature than what had been harboured for years in our own country.

TABLE II.

Shewing how many died weekly, as well of all Diseases as of the Plague, in the years 1603, 1625, and 1636.

		1603		1625		1636	
		Total.	Plague.	Total.	Plague.	Total.	Plague.
June	2	114	30	395	69	339	77
—	9	131	43	434	91	345	87
—	16	144	59	510	161	381	103
—	23	182	72	640	239	304	79
—	30	267	158	942	390	352	104
July	7	445	263	1222	593	215	81
—	14	612	424	1781	1004	372	104
—	21	1186	917	2850	1819	365	120
—	28	1728	1396	3583	2471	423	151
Aug.	4	2256	1922	4517	3659	491	206
—	11	2077	1745	4855	4115	538	283
—	18	3054	2713	5205	4463	638	321
—	25	2853	2539	4841	4218	787	429
Sept.	1	3385	3035	3897	3344	1011	638
—	8	3078	2724	3157	2550	1069	650
—	15	3129	2818	2148	1672	1306	865
—	22	2456	2195	1994	1551	1229	775
—	29	1961	1732	1236	852	1403	928
Oct.	6	1831	1641	833	538	1405	921
—	13	1312	1149	815	511	1302	792
—	20	766	642	651	331	1002	555
—	27	625	508	375	134	900	458
Nov.	3	735	594	357	89	1300	838
—	10	545	442	319	92	1104	715
—	17	384	251	274	48	950	573
—	24	198	105	231	27	857	476
Dec.	1	223	102	190	15	614	321
—	8	163	55	181	15	459	167
—	15	200	96	168	6	385	85
—	22	168	74	157	1		
Whole Year. }		37294	30561	51578	35403	29359	10400

TABLE III.

Shewing the numbers that died weekly of other Diseases as well as of the Plague, in 1665.

	Other Diseases.	Plague.	Total.
May 30	382	17	399
June 6	362	43	405
— 13	446	112	558
— 20	443	168	611
— 27	417	267	684
July 4	536	470	1006
— 11	541	727	1268
— 18	672	1089	1761
— 25	942	1843	2785
Aug. 1	1004	2010	3014
— 8	1213	2817	4030
— 15	1439	3880	5319
— 22	1331	4237	5568
— 29	1394	6102	7496
Sept. 5	1464	6988	8452
— 12	1146	6544	7690
— 19	1132	7165	8297
— 26	927	5533	6460
Oct. 3	791	4929	5720
— 10	741	4327	5068
— 17	554	2665	3219
— 24	385	1421	1806
— 31	357	1031	1388
Nov. 7	373	1414	1787
— 14	309	1050	1359
— 21	253	652	905
— 28	211	333	544
Dec. 5	218	210	428
— 12	199	243	442
— 19	244	281	525
Whole } Year. }	28710	68596	97306

TABLE IV.
*Shewing the Increase and Decrease of several Diseases besides the Plague, from
Month to Month, in the Year 1665.*

	May.	June.	July.	August.	Sept.	October.	November.	Dec.
Plague	43	590	6137	17,036	31,159	9144	8149	734
Child-bed	23	27	65	116	175	55	38	20
Chrisoms	31	41	77	65	84	50	23	15
Consumption	308	347	563	575	571	301	182	158
Convulsion	120	128	220	328	339	156	90	49
Fever	133	133	619	1,398	1,474	451	235	90
Flux and Small Pox	63	63	85	37	22	11	6	6
Gripping	74	109	197	288	202	61	38	17
Imposthume	11	15	32	55	39	24	11	2
Infants	48	40	53	73	79	39	35	16
Purples	1	2	5	7	10	1	—	—
Quinsy	2	2	6	16	4	2	—	—
Spotted Fever	53	62	378	686	483	136	27	14
Surfeit	52	65	300	345	223	90	27	11
Teeth	84	101	305	447	591	187	124	54
Worms	10	18	44	79	80	31	16	8

TABLE V.
Shewing the Number of Deaths by the Plague Monthly, from the 19th of December 1655 to the Year 1671.

	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	October	Nov.
1665 and 1666 }	222	382	222	107	158	162	114	205	162	158	69	28
1666 and 1667 }	15	13	3	—	1	—	—	2	1	4	1	1
1667 and 1668 }	2	4	4	1	2	—	—	—	2	1	1	—
1668 and 1669 }	1	—	—	—	—	—	—	—	—	—	3	—
1670	—	—	—	—	—	—	—	—	—	—	—	—
1671	—	—	—	—	—	1	—	—	2	—	1	1

TABLE VI.

Shewing the Parishes infected, and the Numbers under the head Died of the Plague, from 1661 to 1679, when it entirely ceased.

Years.	Parishes infected.	Died of the Plague.
1661	5	20
1662	4	12
1663	5	9
1664	4	6
1665	130	68,590
1666	104	1,998
1667	14	35
1668	6	14
1669	3	3
1670	—	—
1671	3	5
1672	5	5
1673	5	5
1674	1	3
1675	1	1
1676	2	2
1677	2	2
1678	3	5
1679	1	2

Let us now note the time of the year when the Plague attained its crisis, in the five principal Plague years.

In 1593, the greatest mortality of the year was from the 4th to the 11th of August; but the crisis of the Plague appears to have occurred the week before.

In 1603, the greatest mortality was between the 25th of August and the 1st of September, and that week was also the crisis of the Plague.

In 1625, the greatest mortality occurred between the 11th and 18th of August, which was the critical week of the Plague.

In 1636, the greatest mortality (which was inconsiderable compared with other similar visitations,) took place between the 29th of September and 6th of October, and yet only by a majority of two deaths over the preceding week ; but the crisis of the Plague was a week earlier.

In 1665, the greatest mortality is from August 29 to September 5 ; but the crisis of the Plague appears by the Bill to have been two weeks later. The testimony of Hodges, however, as well as the author of the History, are both in favour of the opinion, that about 12,000 died in the latter period.

From the above statement we perceive that, however the circumstances of London, or of the weather and seasons, may have been supposed to vary in the several periods alluded to, yet the time of the crisis of the disorder varied only a week or two; and the greatest mortality from other diseases was generally in the same week with the greatest mortality from Plague.

If we look over the items of Table VI. where the number of Parishes Infected is given in a line with Died of the Plague, we shall see, that in the course of a great many years it frequently occurred, that only one or two died in each parish.

And the same observation applies to a review of the long period in the Bills of Mortality, from 1603 to 1660. In the latter, it very frequently happened, that

when the disease was so far diffused over the Metropolis as to occupy twenty or thirty parishes at the same time, the mortality often did not exceed two or three in each parish.

For example, in the year 1605-6, in January, five parishes were infected, and only six died of the Plague. In February, eight parishes were infected, and only nine died of the plague. In June, eighteen parishes infected, and thirty-three died of the plague. In November, twenty parishes were infected, and forty-one died of the plague. In the early months of several other years, it was common for only a single death to occur in each parish. Thus, in the year 1607-8, in January, four parishes were infected, and four died; in February, six parishes infected, and six died; and in March, seven parishes infected, and seven died. It does not follow, but that many were ill of the disease who recovered.

These facts will clearly prove that the disease was not confined to a single house or street; and that even when the foci of contagion were multiplied to a great extent, the *spread* was very inconsiderable.

Hence, it may be inferred, that the plague, if the disease of those periods be correctly designated, though constantly present in different quarters, was usually as limited in its range as our mildest contagious fever of the present day; and at the same time as much diffused in various parts, as those diseases which are allowed to have no dependance upon contagion for their propagation.

And though London was for so many years harbouring the disease, and circumstanced in many ways

to favour the diffusion, it seldom happened, taking all things into account, that a general pestilence ensued.

Was then the Plague of London different from the Plague of the Levant? was it more contagious some years than others? If it was the same disease, that so frequently from year to year was reported to be lurking harmlessly in the very heart of the Metropolis; and we have these facts from experience; upon what sound principle do we fortify our coasts with such formidable barriers against it, when the circumstances of our great cities are so entirely changed?

These are important questions, particularly the last, which we shall be better prepared to answer towards the conclusion.

It may now be interesting to see the comparative increase and decrease of the weekly Bills in different parts of the City, at the same time, during the progress of the Plague in 1665. The details I am to notice are taken from the History by H. F.

“The usual number of burials in a week, in the parishes of St. Giles in the Fields and St. Andrew, Holborn, were from twelve to seventeen or nineteen each; but after the Plague began, they increased to twenty-three and twenty-four from the 17th to the 14th of February, of which one only died of the Plague.

The like increase was observed in the adjoining parishes of St. Bride, and St. James, Clerkenwell; in which the usual numbers were from four to six or eight, whereas they were increased within this period

to thirteen and fifteen, though none died of the Plague.

The weekly Bills in general increased very much during these weeks, though it was a time of the year when usually the Bills were very moderate.

Thus, the usual number of burials within the Bills of Mortality for a week, was from about 240 to 300. The last was esteemed a pretty high bill. But the Bills increased as follows.

	Buried	Increased
Dec. the 20th to the 27th.....	291.....	
27th to 3d Jan.....	349.....	58
Jan. 3rd to the 10th.....	394.....	45
10th to the 17th.....	415.....	21
17th to the 24th.....	474.....	59

The last Bill occasioned much alarm, inasmuch as it was a higher number than had been known to be buried in one week, since 1656.

From the beginning of April, the burials in St. Giles's stood at twenty-five each week, till the week from the 18th to the 25th, when there were buried in St. Giles's parish thirty, whereof two died of the Plague, and eight of the spotted fever, 'which it appears was looked upon as the same thing.' The whole number from spotted fever that week was twelve.

A remission again took place as in March; the number of the dead in all was only 388, and there were none of the Plague, and but four of the spotted fever. From which it is to be remarked, how surprisingly the general mortality kept pace in its proportion with that from the Plague and spotted fever.

But the following week it returned again; there were nine of the Plague and six of the spotted fever; for the disease had spread into St. Andrew's, Holborn, and St. Clement's Danes.

The beginning of May, a third remission took place; for from the 9th to the 16th, only three died of the Plague. St. Andrew's buried but fifteen, St. Giles's thirty-two, including one only of the Plague, and the whole Bill was no more than 343.

The city was then comparatively healthy; the whole ninety-seven parishes within the walls buried but fifty-four, of which were none of the Plague.

The next week's Bill gave forty in St. Giles's; and that from the 23d of May to the 30th, fifty-three in this parish alone, of which it was supposed thirty at least died of the Plague and fever, but the registered number is only seventeen."

The general progress has been already described. I shall therefore confine myself pretty much to a comparative view of the Bills, which it might have been more regular to insert in the body of the sketch, but I thought it would too much distract the attention.

It was very strange, says the author of the History, that in this particular week, viz. from the 4th to the 11th of July, when there died near 400 of the Plague in St. Martin's and St. Giles's in the Fields only, there died in the parish of Aldgate but four, in Whitechapel three, in the parish of Stepney but one. And in the next week, from the 11th July to the 18th, when the week's bill was 1761, yet there died no more of the Plague, on the whole Southwark side of the water, than sixteen; and but seventy-one in all those parishes called the Tower Hamlets.

But the disease was now come to its height in the west, and the northern parishes next felt the weight of the calamity.

From the 25th of July to the 1st of August, the Bill stood thus :

	Of all Diseases.
St. Giles, Cripplegate	554
St. Sepulchre's	250
Clerkenwell.....	103
Bishopsgate.....	116
Shoreditch	110
	<hr/>
	1133
Stepney	127
Aldgate	92
Whitechapel.....	104
All the ninety-seven parishes within the walls	228
All the parishes in Southwark	205
	<hr/>
	756

The comparative statement is thus in the Tower Hamlets and adjacent parishes, from the 11th July to the 1st of August, or three weeks :

Tower Hamlets.	1st week.	2nd week.	3rd week
Aldgate	14.....	14.....	65
Stepney	33.....	58.....	76
Whitechapel	21	48.....	79
St. Kath. Tower ...	2.....	4.....	4
Trinity, Minories ..	1.....	1.....	4
	<hr/>	<hr/>	<hr/>
	71	145	228

Adjoining Parishes.	1st week.	2nd week.	3rd week
St. Leonard, Shored. 64.....	84.....	110	
St. Bot. Bishopsgate 65.....	105.....	116	
St. Giles, Crippleg. 213	421.....	554	
	<hr/> 342	<hr/> 610	<hr/> 780

And by the second week in August, Cripplegate parish alone buried 886, and Clerkenwell 155. Thus—from the 8th to the 15th of August, died in

St. Giles in the Fields....	242	St. Magdalen, Ber-	
Cripplegate	886	mondsey.....	24
Stepney.....	197	Rotherhithe.....	3

From the 15th to the 22nd of August—

St. Giles in the Fields....	175	St. Magdalen, Ber-	
Cripplegate	847	mondsey.....	36
Stepney	273	Rotherhithe.....	2

The numbers mentioned in Stepney parish at that time, were generally all on that side adjoining Shore-ditch; but there were not ten people a week that died of it in all that part of Stepney parish which takes in Limehouse, Ratcliff, and which are now the parishes of Shadwell and Wapping, till after the whole month of August was expired.

The three weekly Bills which make out the decrease of the Burials in the west and north side of the City, and increase in the east, stand thus—viz. from the 12th of September to the 3d of October:

	1st week.	2nd week.	3rd wk.
St. Giles, Cripplegate	456	277	196
.....in the Fields	140	119	95
Clerkenwell	77	76	48
St. Sepulchre's	214	193	137
St. Leonard, Shoreditch	183	146	128
Stepney	716	616	674
Aldgate	623	496	372
Whitechapel	532	346	328
In the 97 parishes (City)	1493	1268	1149
In the 8 parishes Southwark	1636	1390	1201
	6060	4900	4328

To shew how far either the weather or the disease affected women in child-bed. Let us take the weeks in which the Plague was most violent, and compare them with the weeks before the distemper began, even in the same year. For example:

	Child-bed.	Abort.	Still-bn.
From Jan. 8 to Jan. 10.....	7.....	1.....	13
17.....	8.....	6.....	11
24.....	9.....	5.....	15
31.....	3.....	2.....	9
Jan. 31 to Feb. 7.....	3.....	3.....	8
14.....	6.....	2.....	11
21.....	5.....	2.....	13
28.....	2.....	2.....	10
Feb. 7 to March 7.....	5.....	1.....	10
	48	24	100

	Child-bed.	Abort.	Still-bn.
From Aug. 1 to Aug. 8.....	25.....	5.....	11
15.....	23.....	6.....	8
22	28.....	4.....	4
29.....	40.....	6.....	10
Aug. 29 to Sep. 5.....	38.....	2.....	11
12.....	39.....	23.....	--
19.....	42.....	5.....	17
26.....	42.....	6.....	10
Sep. 26 to Oct. 3.....	14.....	4.....	9
	291.....	61.....	80

Yet it was supposed there were not one-third of the people in the town in August and September as in January and February, which increases the proportion on the unfavourable side.

The usual number that died of these three articles was thus—

1664	{	Child-bed	189
	}	Abortive & Still-born	458
			647
1665	{	Child-bed	625
	}	Abortive and Still-born	617
			1242

About the middle of July, it appears to have come to its height in the west, about the middle of August in the north, about the middle of September in the City and Southwark, and scarcely till October in the extreme parishes of the east, from which it appears to have spread to the towns in Essex late in the autumn, and to have revived in the spring of 1666.

The numbers who died from the Plague in neighbouring towns were as under.

Enfield32	Hertford90	Brentwood70
Hornsey58	Ware.....160	Rumford109
Newington17	Hodsdon.....30	Barking200
Tottenham42	Waltham Ab. 23	Brentford432
Edmonton19	Epping26	Kingston122
Barnet and } 43	Deptford623	Staines 82
Hadley.... }	Greenwich 231	Chertsey 18
St. Alban's 121	Eltham and } 82	Windsor --103
Watford45	Lewisham }	
Uxbridge117	Croydon61	

VI. From the preceding sketch, the following principal heads naturally offer themselves to our consideration, which I shall proceed to illustrate in order.

1. The Disease discovered itself about the end of the year 1664, and first appeared amongst the poor in St. Giles's.

2. Its progress was arrested during the continuance of a severe winter ; and its diffusion attended by a warm southerly constitution in 1665.

3. It was preceded by other diseases in the spring that occasioned great mortality ; and particularly by an epidemic pestilential fever.

4. It was matter of doubt, whether this fever was the Plague or not.

5. The Disease exhibited various symptoms or characters in its beginning, height, and decline.

6. In the parish where it first prevailed, the mortality from other diseases was most decidedly marked ; and it abated in the west as it proceeded eastward.

7. The train of diseases which had immediately preceded, on its decline re-appeared; and its decrease was, like its increase, moderate.

8. Some exemptions were noticed, both as regarded persons and places.

CHAP. VI.

Of the time when a Pestilence appears, and the subjects it chiefly attacks.

THE Plague in London discovered itself about the end of the year 1664, and first appeared amongst the poor in St. Giles's.

I notice the former fact, because it has not been unusual for an epidemic pestilence to exhibit some signs of its approach at the decline of the preceding year, at least in our northern latitudes.

This was the case in the plague at Nimeguen in 1636, which has been so well described by Diemerbroeck.*

It was the case also in the plagues at Stockholm, Dantzick, and Hamburg, about the beginning of the last century.†

Mertens informs us, that the Plague of 1771, in Moscow, began in the same manner.‡

In the latter end of the preceding year appeared

* De Peste, p. 6.

† Plague no Contagious Disease, p. 10.

‡ Mertens de Peste.

the plague of 1478, and the black pestilence of 1348.*

That of Vienna in 1713, and of Cronstat in Transylvania in 1756, according to Chenot, commenced about the same season.†

In the plague of 1625, in London, one parish only was infected as early as January; and the progress was at first nearly as slow as in 1665, though the spring of the former year was more favourable to its diffusion.‡

In each of these a short interval of suspense occurred during the winter; and they all subsided within sixteen months from the first invasion.

Cherot says, "Observation has taught us in Europe, that if a plague begins in spring or summer, it ceases the following winter; but if it first appears in autumn, it is protracted to a much longer period."§ And this accords with Diemerbroeck's remark, that a winter-plague is more violent and of longer duration than one which begins at any other time.||

I believe it will be found true, that in our latitudes pestilential fevers are longer in coming to their crisis than in southern countries; where they arrive sooner at their height and sooner decline: and Major Graunt observes, that the Plague is longer in rising to its height, than in decreasing to the same pitch, in the proportion of about three to two.¶

We may conceive, however, that many circum-

* Short's History. † Chenot, p. 33. ‡ Dr. Browning, p. 20, and Bills of Mortality. § Chenot, p. 32. || Diemerb. cap. iii. ¶ Graunt, p. 41.

stances would interpose to vary the time of its first invasion: and yet the time when a pestilence begins to spread to any fatal extent, is remarkably connected with the latter end of spring in most places: In Egypt it is otherwise; and perhaps also in countries subject to a *malaria* or endemic marsh-fever, where the autumnal months are most sickly and fatal.

Now as to the fact, it is immaterial whether the latter end of the year is a more fit season to exhibit the first germ of a foreign contagion, or to produce the first marks of an indigenous distemper.

That the plague of London began and prevailed among the poor chiefly, we have the testimony of Hodges, who says, "that many knowing persons ascribed the pestilence to the quantity of bad meat from the preceding sickness among the cattle, which was sold so cheap to the poor, that they fed upon it even to gluttony;" and he adds, "it is incredible to think how it raged among them—to such a degree, that it was called the *Poor's Plague*."*

It is also worthy of remark, that it attacked those parishes in the outskirts, chiefly occupied by this class; and was conveyed by these polluted channels from one end of the Metropolis to the other, contaminating in its course all the neighbouring districts.†

It is asserted by some, without reference to the fact of unwholesome meat, that the disease originated in the neighbourhood of Clare-market, near the slaughter-houses. The proximity of this market to Drury-Lane, where our History fixes its origin, might have

* Hodges's Loimolog. p. 15 and 58. † Journal, by H. F.

afforded some grounds for the rumour. But it is affirmed by L'Estrange that the two previous Plagues of 1625 and 1636 first began among the butchers, in Whitchapel.* And we have it, on good authority, that the latter neighbourhood, which then abounded with poor and slaughter-houses, was so dreadfully visited in 1665 that few of the butchers' shops were kept open.†

The crowded state of the metropolis must have aided exceedingly in propagating the disease in 1665.

According to the testimonies of Alpinus, Pococke, Irwin and Russel, cited by Heberden, who has collected some interesting facts on this head, from the City Remembrancer and other sources, the Plague is observed to break out in Grand Cairo, Constantinople and Aleppo, in the low, crowded, and filthy parts of those cities occupied by the poorest people.‡ But the fact is not peculiar to these cities. In Dantzick, in 1709, it first appeared in a low, dirty part of the city.§ This was the case also at Copenhagen in 1711;|| and we are told that at Moscow, in 1771, and at Rensburg, in Holstein, in 1764, it broke out in crowded situations inhabited by the lower classes.¶ The celebrated Plague of Marseilles, in the year 1720, first appeared in a part of the city noted for the sordid filth, crowded state and wretchedness of the poor inhabitants.*

* Dr. John Pringle, p. 10.

† Journal of Plague, p. 92.

‡ Heberden's Observations, p. 65.

§ Webster, vol. i. p. 358.

|| Gottwald, Philosophical Transactions.

¶ Heberden, ubi

suprà.

* See also the City Remembrancer, sect. iii. and Ingram, on Plagues.

The pestilential fever which broke out at Cadiz in the year 1800, appeared in a quarter of the town where the streets are narrower, less ventilated, and not so clean as in all the other parts, and "where the poorer inhabitants, dirty in their persons, and crowded in filthy rooms, generally live together." *

In 1813 the fever again began at Cadiz, in the same place, viz. the Barrio of Santa Maria; and Dr. Maclean observes, "this devoted quarter was the principal theatre of its ravages." †

"At Alet, in 1720, scarcely more than one or two of the whole number of persons infected by the Plague was above the lowest class; whence, Sauvages concludes, it is probable, bad food predisposed to the disease." ‡

Now, of all the above Plagues, the poor were the chief victims. "And the same," says Dr. Heberden, "has been found true universally." Even Mead asserts that "it has hardly ever been known when the disease did not first begin among the poor." §

Gottwald observes that the Plague at Copenhagen, in 1711, was generally most fatal to the meaner sort.

We are told "there were about 60,000 souls in the city of Copenhagen when the Plague began; and that 25,000 died, and among all these 'scarce one person of note;' and the reason assigned for the poor falling a sacrifice was their filthiness and close manner

* Sir J. Fellowes, cited by Dr. Maclean, vol. i. p. 321.

† Maclean, vol. i. p. 320.

‡ Sauvage's Nos. Method, vol. i.

p. 414. § Mead's Works, p. 165.

of living; three or four families being confined in a single room.”*

“The Plague at Moscow,” says Mertens, “as almost always happens, raged among the common people only. It attacked none of the nobility and richer merchants, but a very few of the most incautious.” At Marseilles also the pestilence committed its greatest havoc amongst the lower orders.†

Upon this point the account given by Chenot, in his History of the Plague, at Cronstat, is interesting. It chiefly affected two classes of the poor in one of the suburbs—the Wallachians and Saxons. It began among the former, and ceased among the latter; their habits and modes of living quite opposite; the first subsisting mostly on herbs, and grain and water, in the most abject state of wretchedness; the last, who suffered at the conclusion, accustomed to more nourishing fare, as wine and animal food, and much less affected in proportion.‡

CHAP. VII.

Of the Seasons and natural Signs preceding and accompanying Pestilence.

Its progress was arrested during the continuance of a severe winter; and its diffusion attended by a warm southerly constitution in 1665.

* Short's History, vol. ii. p. 5. † Heberden. ‡ Chenot de Peste, cap. i. et iii.

The general unhealthiness of a long severe winter in our climate, appears to be clearly established by the concurring testimonies of Fothergill, Sims, Willan, Heberden and Bateman; writers whose accuracy of observation needs no comment of mine. But if the injurious effects have been obvious in years not remarkable for pestilential characters, how much more so must they have been when the circumstances of our cities, from whatever causes, gave a ready reception to the most malignant Plagues! It is not now my business to inquire how such a cause may act in predisposing to disease, nor to consider the question, which may readily occur, why Plague has not followed severe frosts, perhaps more intense and longer than that of 1664. I shall have occasion to notice this subject afterwards, and the effects of the most remarkable frosts that we have had since the year of the Plague. But if we regard the contrast, it is not surprising that in a temperate climate, like that of England, where the human constitution, from our insular situation, is exposed to frequent changes, it should be less able to bear with impunity long-continued extremes: and, in the instance before us, it might be said, without hyperbole, that after the rigours of a northern winter had been endured, the enervating qualities of a Mediterranean climate were transported to the shores of Britain in the mild, though fatal, breezes of the south: so that if, in reality, contagion was sent before, the true vehicle for its propagation, as if by mutual agreement, soon followed the poison!

The great Plague of 1625 in London was preceded by a hard frosty winter, and the summer of 1624 was extremely dry and parching; but that of

1625 hot and moist.* Hence if there be any thing in particular states of the weather conducive to sickness in our climate, extremes would appear to be more prejudicial than any exact order in the qualities of the seasons.

Dr. Pringle has observed, that “ the Polish, Dantzic, English and all the northern Plagues, have succeeded hard frosts ; but that every Turkish plague has followed southerly winds and great rains.”†

Now I believe neither position is correctly stated ; though the general remark is not far from truth. In the first place the effect has not immediately followed in the succeeding summer after a severe winter ; the second year being the crisis in one part, the first in another. For instance, the winter of 1634, which preceded the pestilential fever of Nimeguen and the plague of Leyden in 1635, was extremely severe all over Europe. But the plague of Nimeguen did not occur till the summer and autumn of 1636, after a very mild winter. And, as a general pestilence often takes from two to three years in traversing a country of moderate extent ; we may perceive how we might fall into error, by fixing upon the date of a Plague occurring, for example, in the last year of its propagation, in reference to a phenomenon which might possibly be connected with the time of its beginning, two or three years before. Thus, the Plague, which spread over many of the principal cities of England, in 1666, was not immediately preceded by a very hard winter ; but

* Kephale, on Plague ; and Sims, on Scarlatina.

† Pringle's Inquiry, p. 7.

its first origin in the country was connected with that event; whether accidentally or otherwise, is not at present the question.

Besides, I am aware that any attempt to trace a northern pestilence to a severe winter, solely as a cause, must be reckoned absurd; when, from several of the facts adduced, it appears that the first signs and premonitory cases occurred in the autumn, before the cold commenced. The disposition to encourage a pestilence, therefore, in such cases, must have manifested itself as a consequence of some previous morbid causes or epidemic tendency, of which the hard winter was merely one of the signs.

The same remark applies to many other visitations of pestilence, upon which cursory observers have pronounced triumphantly that no such sequence as that alluded to could be traced: and most of the Plagues referred to by Pringle were circumstanced as I have described. With regard to the second position of this writer, I may briefly notice, that some Turkish plagues have been preceded by great frosts as well as the northern; and they have usually been accompanied rather than preceded by southerly winds. I scarcely know of an exception, but that of Constantinople, in 1753, when the winds from the mouths of the Danube and shores of the Euxine, charged with noxious exhalations, Timon says, were found to be more pestilential than the breezes cooled in passing over the Mediterranean.

“In the year 1751 this city lost 200,000 inhabitants by the Plague. The preceding winter was cold in Turkey, and the old people predicted a severe Plague from the quantity of snow that fell in the city.”

Webster states that this prediction was founded on long observation.—Cited from Chenier's *Morocco*, vol. ii. 275.

The pestilence of 1502, in some parts of the north of Europe, Schenkiius says, accompanied a famine, and followed most vehement intemperature of the seasons. For, a winter so terribly severe preceded, as to kill, every where, the brute animals; and the heat of summer was of such cruel intensity that trees were set on fire by the heat of the sun.*

Riverius has given a very concise and learned account of the origin of Plague in his *Praxis Medica*.† He alludes particularly to the effects of extreme heat after immoderate cold, and quotes Hippocrates, who, in his first Book of Epidemics, and fifth section, traces the sickness of the season to that cause.

He also refers to the fifth Book of Livy, where a pestilential constitution is described to have arisen from similar causes, in these words:—

The year was remarkable for a cold and snowy winter; so that the roads were impassable, and the Tyber completely frozen. This deplorable winter, whether it was from intemperature in the air, *which suddenly changed to an opposite state*, or from some other cause, was succeeded by intense heat, pestilential and destructive to all kinds of animals.‡

* Schenkii Obs. p. 870. † Vol. ii. 98.

‡ “Insignis annus hyeme gelida, ac nivosa fuit, adeo ut viæ clausæ, Tyberis innavigabilis fuerit. Tristem hyemem, sive ex intemperie cœli, raptim mutatione in contrarium facta, sive alia de causa, gravis pestilensque omnibus animalibus æstas excepit.”—Livy Hist. Lib. v.

Russel informs us that the winter of 1756-7 which preceded the petechial fever of 1758, at Aleppo, and the plague of 1759, 60, 61 and 62, in different parts of Syria, was excessively severe. Olive trees, which had withstood the weather for fifty years, were killed. And in the following summer a dearth ensued from the failure of the crops; and so severe a famine that parents devoured their own children, and the poor, from the mountains, offered their wives for sale in the markets, to buy food.*

Again we find that the winter of 1741-2, which preceded the former plague of Aleppo, described by Dr. Alexander Russel, was very severe in Syria.†

It was remarked at Malta that the spring months of 1813, preceding the Plague, were much colder than usual in that island.

“ The months of January, February and March, immediately anterior to the Plague, were all cold months, and it was the universal opinion that the March and April of 1813 were colder than in most former years.‡

But, as it has been observed, that severe frosts have preceded pestilence, so we find that a southerly constitution of the air has often attended and favoured its propagation. As respects the Plague of London, if we may credit the testimony of Dr. Baynard, who states the fact in treating of a very different subject, there was, in 1665, a prevalence of mild southerly

* Russel on the Plague. See also City Remembrancer and Short. † Webster's History, vol. i. ‡ Faulkner, on the Plague of Malta, p. 172.

winds, accompanied with drought for many weeks together, and often scarcely any wind at all. For although Hodges, in very properly combating the notion of a stagnation in the air having any part in the production of the distemper, mentions a few showers and moderate breezes in the summer, sufficient to prevent atmospheric putrefaction; yet, according to the observation of Lord Bacon, moderate showers in drought are rather pestilential than salutary. However, two acknowledged facts are in proof of Dr. Baynard's assertion; the one that all kinds of garden fruits were in unusual abundance and perfection, as cherries, grapes, apples, peaches, plums, &c. which require heat and dryness; and the other a much stronger, relating to the earlier part of summer, that hay was so scarce and dear, from the parched state of the ground, its price was raised enormously in consequence.*

It can hardly be necessary to say much more in reference to the connexion of a southerly constitution of the air with pestilence; as it has been remarked by writers from the earliest records down to the present time. The observations of Hippocrates, Aristotle, Galen, Celsus, Avicenna and Rhazes; and of Lommius, Diemerbroeck, Mercurialis, Forestus, Horstius, Mead, and many others, various as were the countries in which they lived, fully establish the principle.

And as a long prevalence of southerly winds assimilates a northern to a southern climate, so we find that southerly winds in Syria, Africa and the south of

* Journal of the Plague.

Europe, are peculiarly destructive. And I am more inclined to refer the periodical cessation of the Plague in Lower Egypt about the summer solstice, to the regular change that takes place in the winds, which then begin to blow from the north, called Etesian, than to any effect arising from the inundation of the Nile covering marshy grounds. A heavy dew, called *mukta*, which begins to fall about the same time, is considered by the natives very salutiferous.

Hippocrates, treating of the *Katastasis loimodes*, mentions the *Constitutio austrina*; and says, “*sine aura usque annus fuit.*” “The year was almost without a breath of wind.”

We are told also by Sorbait that during the Plague of Vienna, the winds were imprisoned as in a dead calm, for three whole months.*

During the Plague of Nimeguen, Diemberbroeck remarks, “the summer and autumn were extremely hot, with such drought as scarcely ever was remembered; and southerly winds prevailed almost from spring to winter, but frequently no wind at all, with a heavy clouded atmosphere.”†

The mortality was always greatest at Marseilles, when the wind set in more directly from the south. And Assalini constantly observed the same effect, from the same cause, in Egypt.‡ A similar fact was noticed at Gibraltar, both in 1810 and 1813;§ and at Noya in 1816.||

* Van Swieten Comm. vol. v. p. 160, † De Pest. cap. iii. and v. ‡ Observations on the Plague, p. 42. § Maclean. || Quarterly Journal of Medicine.

In the epidemic, of 1810, "A refreshing north-west wind came, and restored health to the garrison. This also was observed in the fever of 1813."*

But southerly winds are not the only signs that belong to a pestilential state of the air. Many others have been observed on similar occasions, which I shall very briefly notice under this head. For when we have the admission of so great an authority as Dr. Mead, that "a corrupted state of air attends all Plagues," it naturally follows that we should inquire, what are the manifest signs of this state of air, in its effects upon the animal and vegetable creation? It follows, likewise, that in different countries different phenomena should present themselves. Accordingly, that I may express the fact in few words, dearth or unwholesome provisions, pestilence among cattle, great abundance of insects, absence or death of birds, blight and mildew, &c. &c. appear, with few exceptions, to have separately or conjointly preceded or attended all such calamities.

I say nothing of comets, earthquakes and volcanic eruptions; as these events have been too remote, and have occurred in so variable a manner as not to enable us to establish any rational connexion. Yet it is not the business of philosophy to keep out of view any concomitant events, merely because the existing state of knowledge may not be sufficiently advanced to trace a probable relation. At the same time it is highly desirable that remote and inexplicable phenomena

* Burnet, cited by Maclean, vol. i. p. 353.

should give place to events that seem to be of a more tangible and domestic nature.

I would be far, however, from saying that events of the latter description are so regular in their occurrence as to reduce the prognostics of pestilence to a science. But I might safely inquire, what department of human knowledge is there, in which, when we presume to predict events from natural signs, we are not continually liable to deception; notwithstanding we may admit that some pretty general principles, in each department, may already have been established? The phenomena resulting from the mathematical laws of motion, which govern the heavenly bodies, are almost the only exception. But over these human wisdom and human depravity have no power; as is the case in degree with a certain class of events passing in our globe; where much is left to the providence of man for his reward, and much to his careless administration for his correction. Of the connexion of pestilence with the last, in a qualified sense, I do not entertain a doubt. And hence, wherever human contrivances or schemes, out of the general harmony of Divine wisdom, adulterate the beautiful operations of nature, events of a varied and complex character naturally result; difficult of classification and uncertain in their order. The prognostics of pestilence partake of this uncertainty. For, as human interference can avail much in the combination of causes, so can it avail much in the means of prevention; in the one case to modify the operation, and in the other case to controul the effect. How then can we expect an established uniformity; when the state of the soil and of our cities, when the condition of our dwellings, perhaps even of

our persons, when the situation of our poor, with our arrangements as to food, and our various habits, are all subject to our care and superintendence, and may all act a part in the tragedy of pestilence; so as to draw the bolt upon our heads, if we neglect, or avert the calamity, if we wisely discharge our duties?

The connexion between famine and pestilence has been too often noticed, in all ages of the world, to make it necessary to adduce a single illustration; and next to famine, in its injurious predisposing effects, as a natural consequence, must be considered unwholesome food.

I have already stated that disease among cattle prevailed in England the preceding year. And as the plague raged in Holland at that time, so, it is recorded, this epidemic mortality among sheep, oxen, hares, deer, &c. extended over the continent; whilst a malignant epidemic was in Prussia, and a pestilential fever over all the Venetian territories.* Short says, “to some great sheep-masters it makes one of their epochas still, and is called *the rotten year*, most of all their great flocks of sheep dying then.” Therefore, although the year of the Plague was plentiful in all kinds of food; when we consider that the plague began and spread among “the ordinary people, to whom large quantities of this unwholesome flesh was sold at a very low price,” we are enabled to draw something like a conclusion from two such successive events, favourable to their natural connexion; and are instructed not so much to regard the immediate season

* Short, vol. i. p. 338

of the calamity as the previous circumstances. Yet, if no effect injurious to the human body should be allowed to the cause in question, it is certainly not unfair to ask, might not the same cause which afflicted brutes with disease have also a deleterious influence upon mankind? As the poor had no want of food, such as it was, in the beginning of the year, we find the stores of nature were unlocked with uncommon profusion in the supply of all kinds of fruit; a supply perhaps, at that time, as uncongenial to health as the former; for it was devoured so eagerly that it was generally believed the malignity of the disease was much aggravated by it. Indeed Hodges is of that opinion.

In looking over some of the former Plagues of London, it is melancholy to reflect how often they were connected with scarcity of provisions.

Foreign wars and intestine commotions; united with a neglect of agriculture on the part of the labourer who had no security for his toil, and a neglect of political care on the part of the rulers, who were too much harrassed with state disorders to have time for acts of peaceful internal government; broke down the substantial supports of a wise economy, impoverished the country and distressed the people. It was a natural consequence of this unhappy state of things that the wretched poor should fall the first victims, when the arrows of pestilence were abroad. And we find it was not unusual for the contamination to ascend the scale of society; and, as a just recompence, to level all ranks with indiscriminate slaughter. The same may be observed in the History of Rome; and the same in the Jewish state; and in every country where distrac-

tion and misery have co-existed, as the effects of misgovernment and depraved habits; so as to curse the soil with barrenness, to paralyse the hand of industry, and to inundate the country with a native progeny of physical and moral evils—war, famine and pestilence.

We might fill a volume with facts respecting the connexion of pestilence with famine and bad food, from the earliest times. We may expect that like causes will always be followed by like effects in every country. But can we think that all history is in error as to the physical relation of these events—and that while one of them is domestic, the other must be accounted foreign?

Salvaresa, cited by Dr. Maclean, supposes the epidemic fever of 1764, at Cadiz, was occasioned by the old and corrupted corn. “Amongst the poor the disorder was most violent. In this year the animals were first affected; and the mortality was principally observed among birds that fed on grain; as pigeons, poultry, &c.”—“A species of insects, called by the Spaniards *langostas*, were also seen there previous to the breaking out of the fever: and it is remarkable that the same kind of insect made its appearance in the spring of 1800, before the fatal pestilence of that year.”*

In addition to this, I may state a few other particulars respecting insects. It may appear singular that any degree of importance should be attached to this sign, when we consider that, in London, during the summer of 1665, scarcely one-tenth of the usual

* Maclean, vol. i. p. 290.

number appeared. Whether the long previous frost contributed to this effect, by destroying their ova, is a subject worth inquiry. But, though it appears an exception to a rule which observers in all ages have borne testimony to, I would rather my labour in collecting these incidents should go for nothing than omit any fact which appears to be of a contrary tendency. Without doubt, if a comprehensive view could be taken, the exception could be explained, if there is any truth in these principles; and if there is not, some future inquirer may detect the error of mal-association.

But in pestilential years, when no counteracting cause has operated to destroy the insect tribes, an enormous increase has often been noticed. This was strongly exemplified at Nimeguen.

According to Diemberbroeck, there was "an immense and incredible abundance of insects, such as was scarcely ever before seen, as gnats, butterflies, beetles, grasshoppers, hornets, and especially flies: of which there was everywhere such a prodigious quantity, during the Plague, that the inner walls of the houses seemed on all sides covered with flies, and the air, out of doors, in many places, was darkened as it were with clouds of these insects."*

Diemberbroeck cites, in illustration, Augustine, Hieronymus, Agricola, Joannes Wolffius, and Hildanus, and observes, that "an uncommon abundance of insects for many ages has been noticed to portend pestilence."

* Diemberbroeck de Peste.

In some cases they have occurred the year before; in others, at the same time.

In different countries also, different kinds of insects have appeared in the course of a few successive years, as *signs* of plague; but are scarcely to be numbered among the *causes*.

Thus, it is said, in 1610, Constantinople was infested with clouds of grasshoppers, of great size, that devoured every green thing; and the next year, 1611, the Plague carried off 200,000 inhabitants of that city.

“Such clouds or swarms of grasshoppers so plagued the city and country about Constantinople in 1610, that they darkened the sun, and left not any green herb or leaf in all the country. They entered the bed-chambers. They were near as large as door-mice, with red wings.”

SHORT, vol. i. p. 295

This same year, 1611, Goclenius writes in his account of the Plague in Hesse, and other parts of Germany, followed by a great pestilence among pigs and cattle in 1612, “a sudden and amasing quantity of spiders appeared.”*

In 1612, swarms of locusts laid waste the vegetable kingdom in Provence: and in 1613, the Plague appeared in different parts of France; and in Montpellier, a malignant fever, with carbuncles.† Whilst in this latter year at Lausanne, where the Plague particularly raged, there was such an abundance of flies, as was never remembered. “Tanta ubique fuit muscarum copia ut post hominum memoriam vix similis visa

* Goclenius de Peste, p. 150.

† Webster and Riverius,

fuertit.”* Besides, in 1611 and 1612, caterpillars were so abundant, that they quite consumed all garden fruits and greens.†

Dr. Gottwald, in his reports to the Royal Society on the Plague of Dantzick, in 1709, states, that prodigious quantities of spiders were noticed the preceding year (which was after a mild winter,) when the malignant fever, præcursor of the plague appeared in that city.

The five following years are remarkable for general pestilence in Europe, as well among the human species, as cattle and horses, and for abundance of insects.‡

The History of the Plague among cattle is very interesting. It was perhaps the most general of any upon record; and not the least striking particular that it broke out in England nearly two years after it had ceased on the continent in 1714, a signal year for drought. In Holland it was said to have killed 300,000 head of cattle. It began in Hungary. See Short.

The year before the plague of Venice, in 1576, Mercurialis informs us, there was an incredible abundance of caterpillars in the streets, and on the walls and windows.§ But it was remarked as very singular, that in the year of the plague itself, grasshoppers were unusually scarce or quite silent.

“Lord Bacon remarks, that those years have been noted for pestilential and unwholesome, wherein there were great numbers of frogs, flies, locusts,” &c.

“Aristotle mentions the multitude of frogs in sickly years.” See Webster.

* Hildanus, cent. iv. † Short's History, vol. i. ‡ Ib. vol. ii. 13.
§ De Pest. p. 9.

Horstius informs us, that unusual numbers of frogs, locusts, canker-worms, snails, and similar insects, are the infallible signs of a pestilence.*

Diemerbroeck has collected in his sixth chapter, several testimonies of a like import.

With respect to Locusts, scarcely an author has written upon the subject who has omitted to notice their connexion with Pestilence, in the southern latitudes. Dr. Mead alludes to the testimony of the Arabian physicians, and says, "that in Ethiopia those prodigious swarms of locusts, which at some times cause a famine, by devouring the fruits of the earth, are observed to entail a new mischief upon the country, when they die and rot, by raising a Pestilence."†

Now, although the putrefaction of locusts in Ethiopia is made of such vast importance, we do not find that Dr. Mead is willing to allow any effect to this cause in other places. If we look at Marseilles, an interesting fact presents itself.

Dr. John Pringle informs us, that "the preceding summer being excessively hot from the continuance of the south-east winds, blowing through Africa, incredible numbers of locusts were forced to take flight to Provence for shelter, where they devoured every thing on the ground, so that a tax was levied to destroy them. They lay all the winter in heaps, and prevented the usual refreshing exhalations from plants, trees, &c."‡

It is probable this was only one of the effects of a

* Webster's Hist. vol. ii. † Mead, p. 182. ‡ Pringle's Inquiry, p. 18. See also Consid. on Pestilence, by the Freethinker, p. 117.

more general cause, which produced an unusual dearth in corn, wine, and oil : for, “the preceding year 1719, we are told by Didier, was barren, and the fruits were bad,” so that the poor, among whom the disease at Marseilles chiefly raged, were almost starved during the year of its prevalence.

Now, though an excessively hot spring calculated to raise the putrefaction of these insects about Marseilles immediately followed, yet nothing is ascribed by Dr. Mead to the phenomenon in question. It is not even mentioned in any reference he makes to that dreadful calamity. But, it must be remembered, that he sets out in the introduction of his work with this position, that the Plague is generated in Africa, “and no where else.” Dr. Mead takes it for granted, that excess of heat and putrefaction, though it may be capable in high northern latitudes of originating very malignant diseases, is yet insufficient to produce the disease called Plague. Towards the conclusion of these observations, that hypothesis may with more propriety be considered when we have gone over the several heads of which I am to treat.

It is a singular coincidence, that in 1612, the same province of France was visited by locusts; and different parts of the kingdom, the following year, by pestilential fever and plague. We have, however, no account of it in Marseilles; nor does it appear that there was any deficiency in the harvest of 1611, as in 1719.

Locusts and Pestilence are frequently brought into connexion in the sacred writings.

Blasting and mildew are also noticed in the same,

as if there was a physical relation between them and plague.

Dr. Baynard alludes to the mildew during the plague of London ; and Diemerbroeck speaks of "the putrefaction of flesh, and all other things being quicker and ranker than usual at Nimeguen in 1636." He also mentions the appearance of "meteors almost every night in abundance during the two pestilential years, without rain or thunder." This latter phenomenon, when of long continuance, is noticed by Lord Bacon among the signs of Pestilence.

Forestus, quoted by Goclenius, says, "it is one of the undoubted signs of a pestilential atmosphere, when all kinds of bread, fruit, flesh, &c. exposed to the air become rapidly putrid."

I apprehend authorities on this point might be cited in abundance.

Webster has collected several curious facts as to the appearance of a peculiar fog or dew, and of certain marks on the walls at such times.

Thus a dark thick offensive mist arose and spread over Dantzic, in August 1709, during the plague.

A similar fog or vapour, the same author says, appeared in New York during the most fatal period of the Plague in September 1798.

Schreibner, cited by Van Swieten, mentions, that a small cloud often hangs over the infected place.

In the mortal plague of 252, historians say, a *ros tabidus*, or putrid dew, was seen which covered objects with mould and corruption.

At Oczakow, in 1739, the pestilential air produced effects somewhat similar.

Warnefrid relates, that in the pestilence at Liguria

there appeared suddenly certain spots, quædam signacula, on doors of houses, garments and utensils, which could not be washed out. And Paulus Diaconus records, that in the dreadful plague of 746, similar figures appeared on the garments of people.

Boyle mentions similar phenomena, and cites Thuanus and Kircher for his authorities.*

If so great a philosopher as Boyle thought facts like these were deserving of his notice, I am not aware that we have in the present day means of disproving them; and though I cannot vouch for all, nor think it worth while contending whether they really belonged to such a state of air, if they did occur, I know not that an unyielding scepticism with regard to them can either shew our candour or love of truth.

Whether the greenish or reddish marks on the walls, which were the signs of the plague or contagion of leprosy, in the houses, as stated in Leviticus, ch. xiv. v. 37. had any relation to the above, I cannot say; but some of the facts are curious, and particularly the inveterate nature of the contagion, which required even walls to be pulled down, to rid their dwellings of the poison. It is clear from this, that contact was not the only means of communicating that disease.

I shall now advert to a few facts respecting the absence and death of birds, as signs of Pestilence, premonitory or present.

Dr. Mead in his short discourse states, "it has been observed in times of the Plague, that the country has been forsaken by the birds."† But he seems

* Webster, p. 2. 177. † Mead, p. 25.

rather to refer it to the malignity of human contagion, than to any thing in the atmosphere unfriendly to them.

Diemerbroeck says expressly, that at Nimeguen, both in 1635 and 1636, "Birds were much more scarce than at other times; and cage birds often died in the houses without any obvious cause."

"Avium multo rarior numerus quam aliis temporibus." "Hoc unum adhuc observavimus, ubi aviculæ (quas nonnulli caveis inclusas delectationis gratia alunt) sine ulla causa externa moriebantur, in illis ædibus etiam non diu post inter homines pestem dominatam fuisse, *idque multis in locis contigisse vidimus.*"*

Goclenius, whom I have before quoted, relates that birds suddenly fell to the ground; and swallows deserted their nests and young, as he observed with amazement in the pestilential year 1611.†

In the two celebrated Plagues of 1505 and 1522, according to Schenkius, the birds left their nests, forsaking even their eggs and young ones.‡

Forestus relates from a work of Joachim Schyller, de Peste Britannica, that Birds were every where (passim) found dead under the trees. Whether this fact refers to the sweating sickness, or any other Plague in Britain, is not apparent.§

Schreibner, cited by Van Swieten, tells us, that no birds were to be seen flying in infected places: and in the Plague of Vienna, Sorbait states, that larks, which used to be very numerous in Austria during the autumnal season, had disappeared so entirely, that not a

* Diem. de Pest. cap. vi. † Goclenius, p. 150. ‡ Schenk. Obs p. 870. § Vide Diemerb. de Peste, p. 331.

single one could be found; and all birds shut up in cages before the windows perished.*

During the four months Dantzick was afflicted in 1709, all kinds of birds, as swallows, crows, sparrows, &c. deserted the City:† and birds were seldom seen at Venice, when it was visited in 1576.‡

Webster cites Livy, who says “that in the terrible plague in Rome, A. U. C. 571, not a vulture was to be seen for two years. And Thucydides tells us, that in the Plague of Athens, “the birds that usually preyed upon human flesh entirely disappeared, not one being seen about the unburied carcases, or in any other place at that time.”

Having given these few examples, I am induced to say a few words on the Plague of Athens, as described by the last-mentioned author, Thucydides. It is indeed bare of many of the incidents which have been alluded to; and if we could gather nothing from any other writer respecting it, would perhaps appear an exception. In like manner, if we had to collect the history of the Plague of London only from Sydenham or Hodges, we should remain ignorant of many important particulars that belonged to it. Not that we should withhold from them their due, for the valuable information each has transmitted. But so differently is the same event described by different observers, that many would scarcely discover a resemblance. Our great historian, Hume, has devoted only three lines to the account of a calamity that filled the whole kingdom with consternation, sickness, and death.

Of the Plague of Athens, however, so strikingly

* V. Swieten, vol. v. p. 159. † Short's Hist. ‡ Mercurialis, p. 10.

coloured by Lucretius, we are enabled to derive some further information from Diodorus Siculus.

About the beginning of summer, a sickness began first to appear among the Athenians, such as was reported to have raged before this about Lemnos and other places. Athens, being then in a state of siege, was crowded with people; and it was one of the charges afterwards brought against Pericles, that he had cooped up such vast multitudes within the walls at such a season. The removal of the country people to the city was a heavy grievance: for as they had no houses, but dwelt all the hot summer season in stifling and crowded booths, the Pestilence destroyed them with the utmost disorder. The contagion shewed itself first in the Piræus, the place of low traffic, inhabited by the poorer classes. After this it spread to the upper City.

Great rains had fallen in the winter, which were succeeded by a very hot summer, during which *the Etesian gales or evening breezes, from the north-east, were wanting.* See City Rem. 217.

The picture drawn by Lucretius of this event, agrees very nearly with that given by Ovid of the Plague of Ægina. "Thick clouds and stagnant air and intense heats ushered in the calamity; and for four intire months, the sultry south wind breathed its pestiferous poison: so that the fountains and lakes were corrupted; and thousands of serpents were to be seen crawling in the fields. Dogs were the first victims; and birds and sheep and cattle. Even horses and the wild animals perished. And last of all, the dreadful pestilence preyed upon the husbandman, and raged within the walls of the city." Ovid. *Metam. lib. vii.*

With what accurate observation has the poet followed the order of nature in his description of these phenomena!

It is generally agreed,* that the period of the Athenian plague coincides in time with the first year of the epidemics of Hippocrates, which ushered in the pestilential constitution that soon after prevailed in Thasus; and it is supposed also in many other of the Grecian islands. "But the malignant year of Hippocrates is also the year when, according to Thucydides, the plague that had not been quite extinguished, broke out again; as well as the year of the plague which Soranus says began or came from the Illyrians, and spread southward, contrary to the course of the other, which appeared to travel northward from Ethiopia."

The intire evidence leads to one conclusion, that the Plague of Athens was not a solitary unconnected event, depending upon no other cause than contagion from Ethiopia. There was then undoubtedly a general tendency to disease over that part of the world. Almost all Attica felt its fury; and Persia, though so distant, partook of the desolation.

Thucydides, though in Athens at the time, appeared so little aware of the cause, as "to call upon every one, physician or not, to assign any credible account of its rise, or the causes powerful enough to produce it."

If the cause had been at all obvious, it would not have been reported, that the Peloponnesians had poisoned the wells."†

* Vide Short's Hist. vol. i. † Vide Thucydides, Diodorus, Plutarch in vita Periclis.

Many of our best poets have observed the connexion of Plague with indigenous events; and they have been generally considered faithful interpreters of nature.

The hackneyed quotation from Homer ought not to be omitted: After Apollo, or the sun had darted the intensity of his rays upon the Grecian camp,

On mules and dogs th' infection first began,
And last the baleful vengeance fixed on man.

Pope's *Iliad*, Book i.

Vapours, blown by Auster's sultry breath,
Pregnant with plagues, and shedding seeds of death;
Beneath the rage of burning Sirius rise,
Choak the parch'd earth, and blacken all the skies.

Iliad, v.

During th' autumnal heats th' infection grew,
Tame cattle and the beasts of nature slew.

Dryden's *Virgil*.

For all those plagues which earth and air had brooded,
First on inferior creatures tryed their force,
And last they seized on man.

Dryden's *Ædip.**

Our own poet Armstrong has taken a more philosophical view of the subject, in his *Art of preserving Health*; where he says, in his *Invocation to Hygeia*—

“ Whatever Plagues
Or meagre Famine breeds, or with slow wings
Rise from the putrid wat'ry element,
The damp waste forest, motionless and rank,

* Historical Account of Plagues.

That smothers earth and all the breathless winds,
 Or the vile carnage of th' inhuman field;
 Whatever baneful breathes the rotten south;
 Whatever ills th' extremes or sudden change
 Of cold and hot, or moist and dry produce,
 They fly thy pure effulgence."

Art of Preserving Health, Book i.

If we carry our research still higher, as into the ancient and authentic page of sacred history, we find that the Plagues of Egypt exhibited a series of phenomena, rising in progression from corruption of the rivers and fountains, swarms of insects, murrain among cattle, thunder and thick darkness, and a tribe of inferior diseases, to that fatal pestilence which swept away the first-born of the Egyptians. And I trust it may not be considered any derogation from those miraculous events to suppose, that the Author of the universe should make use of his handmaid nature, according to the order of his institutions, in his own way and time, to execute his judgments.

Milton has beautifully, and with his usual conciseness, described them in the supposed prophetic discourse of Michael to Adam.

"To blood unshed the rivers must be turned.
 Frogs, lice and flies, must all his palace fill
 With loathed intrusion, and fill all the land;
 His cattle must of rot and murrain die;
 Botches and blains must all his flesh emboss,
 And all his people; thunder mix'd with hail,
 Hail mix'd with fire, must rend th' Egyptian sky,
 And wheel on th' earth, devouring where it rolls;

What it devours not, herb, or fruit, or grain,
 A darksome cloud of locusts swarming down
 Must eat, and on the ground leave nothing green;
 Darkness must overshadow all his bounds,
 Palpable darkness, and blot out three days;
*Last with one midnight stroke all the first-born
 Of Egypt must lie dead.** Par. Lost, Book xii.

It would appear, however, from the following quotation, that Palestine was liable to physical evils not unlike those of Egypt.

“If I shut up Heaven, that there be no rain, or if I command the locusts to devour the land. If there be famine, blasting, mildew, and caterpillar; or if I send pestilence among my people.”

2 Chron. ch. vii. and 1 Kings, ch. viii.

* “About the beginning of May, certain winds cover even the sands of the desert with the most disgusting vermin. The latest descendants of Pharaoh are not yet delivered from the evils which fell upon the land, when it was smitten by the hand of Moses and Aaron; and the plague of frogs, the plague of lice, the plague of flies, the murrain, boils and blains prevail so, that the whole country is corrupted, and the dust of the earth becomes lice upon man and upon beast throughout the land of Egypt.”

“During the months of June, July, and August, there was hardly an individual who did not suffer more or less by the ophthalmia. Many persons were afflicted with boils on their skin, which were called boils of the Nile. The plague of flies covered all things. No cleanliness could secure you from vermin. A gentleman made his appearance before a party he had invited to dinner, covered with lice; the only explanation he could give was, that he had sat for a short time in one of the boats upon the canal.”

Dr. Clarke's Travels in Africa, sect. ii. part. ii. ch. ii.

We cannot read the divine remonstrance from Amos without being particularly struck with the progressive series of the judgments; one following another in the natural order. And the circumstances are mentioned by the prophet with remarkable precision, even to the very "stink of their camps."

"I have given you want of bread in all your places; yet have ye not returned unto me, saith the Lord.

"And also I have withholden the rain from you; yet have ye not returned unto me, saith the Lord.

"I have smitten you with blasting and mildew; when your vineyards and fig trees and olive trees increased, the palmer worm devoured them, yet have ye not returned unto me saith the Lord.

"I have sent among you the Pestilence after the manner of Egypt; and I have made the stink of your camps to come up into your nostrils; yet have ye not returned unto me, saith the Lord."

Amos. ch. iv. v. 6-10.

Thus we see that philosophers, poets, ancient historians, and physicians, speak as it were one language, and sound one note of warning. And even the sanction of holy writ may, without forced comment, be applied in support of the general principle. Whilst a single idea that seems in its practical effects to exclude all other considerations,—the dread of foreign contagion,—upon this point engrosses the concern of all the most enlightened modern statesmen of the most civilized countries in the world!

CHAP. VIII.

Of the præcursor Diseases of Pestilence.

It was preceded by other diseases which occasioned great mortality, and particularly by an epidemic pestilential fever.

The circumstances adverted to in the two preceding Chapters, especially the last, might have been objects of attention to almost every observer.

What are next to be considered, fall more immediately within the province of the physician.

We shall thus see, the farther we proceed, and the more accurately we examine, even till we come to take a nearer view of the disease itself, whether a conclusion in accordance with one general principle, may not be drawn from every separate inquiry. And I am willing to think the arrangement I have adopted will assist in leading us, by the most natural method, through the investigation.

The increase in the Bills of Mortality for the year 1664, has been already noticed, as well as the great devastation remarked by Sydenham in the spring of 1665, from inflammatory disorders.*

* A similar increase took place for two years before the Plague of 1636; and also before that of 1625.

Russel informs us, that “ the seasons had been observed to deviate from their usual regularity for some time before the plague of Aleppo in 1760 ; and that it was preceded by famine, uncommon diseases, and a malignant petechial fever, which produced every where a mortality little inferior to that of the true Plague.”*

Diemberbroeck describes, in very strong terms, the fatal præcursors of the Plague at Nimeguen in 1636, which, it is to be observed, not only fell with peculiar violence upon this devoted city, and the province of Guelderland, but overran all Belgium and great part of Germany, in the years 1635-6-7.

“ After a summer intensely hot and dry in 1635, there arose many severe and untoward epidemic diseases, as small-pox, measles, pestilential denteries, and putrid malignant fevers. A dreadful pestilence carried off 20,000 persons the same year at Leyden. But among us, and in most other parts, at the same time, a certain malignant pestilential fever raged every where with dreadful fury and destruction.

“ *Furiosissima pestilens febris, veræ pestis prodromus, quæ totam Gueldriæ regionem gravissime afflixit.*”

“ Towards the autumn, these epidemics increased in violence; but most of all the fore-mentioned pestilential fever, which advancing in malignity from day to day, and changing more and more for the worse, became what the Italians call purple or petechial, until at length it passed into the true Plague—donec tandem in apertissimam pestem transiret.”

* Russel, Book i. chap. iii.

“ Which plague beginning in November, was however checked a little by the mild winter, but soon recovering itself, assumed greater strength, and like a furious conflagration, laid waste the whole city the following year.*”

Webster cites Bellinus de Febribus, who, after mentioning unwholesome food, corrupt air, intemperate seasons, &c. which he calls the antecedents of Plague, says, that when it is about to break out, it is immediately preceded by epidemic diseases of different kinds, as Petechial fever, small-pox, measles, dysentery, epidemic pleurisies, &c.†

And Lord Bacon, whose mind seemed as capacious of aphorisms, as others of insulated facts, has observed, that “ the lesser infections of small-pox, purple fever, agues, &c. in the preceding summer, and hovering all winter, do portend a great pestilence the summer following. For putrefaction rises not to its height at once.”‡

“ The Plague at Messina in 1743, which began by slow degrees to manifest itself in May, was only considered as an epidemic fever, as the intemperature of the air had in reality occasioned certain epidemical and mortal distempers, during all winter, in many parts of Italy and Sicily.”§

Though Mertens, in the preface to his description of the Plague at Moscow in 1771, notices the præcursor epidemics and stationary putrid fever, which for three years before prevailed at Moscow ; he guards

* Diemerb. de Peste, cap. iii.

† Webster, vol. ii. p. 64.

‡ Bacon, vol. iii. p. 166.

§ Russel, lib. vi. ch. ii;

himself especially from having it understood, that this fever had any connection with the Plague which raged at Kiow the preceding year, and notwithstanding the most rigorous police, insinuated itself into Moscow the latter end of 1770.

The order of these epidemics at Moscow, and the surrounding provinces, was as follows.

In 1768—The putrid catarrhal fever.

In 1769—The putrid bilious fever.

In 1770—The putrid nervous fever.

In 1771—The Plague, at its rise, called the malignant fever, from the ambiguity of its symptoms.

I am particularly anxious to adduce general observations, instead of referring to individual cases, and therefore gladly avail myself of Dr. Mead's authority, in stating the general fact, "that fevers of extraordinary malignity are the usual forerunners of Plague; and the natural consequence of that ill state of air, which attends all plagues."*

This admission I consider so comprehensive, as almost to preclude the necessity of my adding a single instance in support of it. It is certainly an acknowledged principle in the History of Plagues, of vast importance to the interest of science.

The testimony of many authors, that epidemic diseases of different kinds either uncommon or malignant, often precede the plague, is scarcely definite enough for the purposes of science. But when we find that one particular disease, such as is called the

* Mead's works, p. 174.

putrid, malignant or petechial fever, is in almost every instance the immediate forerunner and herald of its approach, then indeed the invasion of Plague loses more and more its character of uncertainty; and instead of depending on a mere accidental occurrence, as an infected waistcoat, spider web, or bale of cotton, partakes of the nature of those physical events, which are subject to order, and governed by defined laws.

Now it is not a little singular, when we consider varieties of season, climate, and situation, and the ever-varying forms of disease itself, that nearly all the most remarkable plagues of the last two centuries have been preceded by this kind of fever. I have looked cursorily over a few, and will endeavour to prove this assertion by facts.

The Plagues of Venice in 1576, of London in 1625 and 1665, of Nimeguen in 1636, of Naples in 1656, of Marseilles in 1720, of Aleppo in 1742, of Messina in 1743, of Vienna in 1713, of Aleppo and the Levant from 1759 to 1763, of Holstein in 1764, and of Moscow in 1771, were all announced by this warning herald.

In 1574, a petechial fever overspread Italy and Spain; and in 1575, in many parts of Europe appeared the Plague, particularly in Trent, and the neighbouring territories. In 1576, the disease appeared in Venice; but Thuanus says, opinions were as usual in such cases divided, as to the nature of the disease. Two eminent foreign physicians, Mercurialis and Cappivacci, asserting, that it was not pestilential; whilst most of the Venetian physicians determined that it was the true Plague. The Senate listened to the

former; but 70,000 persons died in the course of the year.*

The reason of these doubts will be stated afterwards.

“ In 1624 a malignant spotted fever prevailed in London, which, in 1625, turned to the Plague; and in 1626 turned to the fever again.”†

In the terrible pestilence at Naples, in 1656, it was said 6000 died in a day—only 50,000 surviving out of 290,000. It extended to Rome, Candia, Genoa and Benevento, and was preceded by a malignant fever. “ One Physician, who in its early stage alone pronounced it the Plague, was imprisoned for his audacity by the Viceroy.‡

The Plague of 1665, I have already stated, on the authority of Sydenham, began with a pestilential fever and ended with the same.§

The language of Diemerbroeck is perhaps stronger than that of any other author who has described this fact. “ This most furious and malignant pestilential fever, the præcursor of the true Plague, changed every day for the worse, assuming more and more the symptoms of putrescence, till it became spotted, and passed into the most decided plague.||

“ In February, 1713, began malignant spotted fevers in Austria, especially at Vienna, which raged with a terrible mortality. In May they were attended

* Webster, vol. i. p. 256. † Lotichius, cited by Short, vol. i. p. 306. ‡ Webster and Short. § Vide Morton, in Heberden, page 87. || Diemerbroeck, de Peste, cap. iii.

with buboes, and in June they turned to the plague, both at Vienna and at Posen in Hungary.”*

“ About the beginning of the year 1720 a pestilential fever appeared at Marseilles, of which many died, and in some appeared buboes, carbuncles and parotides.”

Of this preceding fever it is said, “ we observed in the course of these fevers buboes, carbuncles, parotides; sudden deaths had already announced some singular change either in the human body or the seasons.”†

“ On observa dans le cours de ces fievres, des bubons, des charbons, des parotides; des morts subites avoient déjà annoncé quelque changement singulier dans les corps ou dans les saisons.”† The last remark designates the true character of the disease, even if the former signs had been wanting. But I am rather anticipating what is to follow.

Now it was not till May that the supposed infected ship arrived from Syria. Dr. Mead admits that “ a fever of extraordinary malignity was in Marseilles before this ship arrived; and further, that it might perhaps be attended with eruptions resembling those of the true Plague!”† “ But,” he concludes, “ *it is not conceivable* that there should be any appearance of the true Plague before that time;” because the true Plague, according to his views, is only generated in Africa!

I am inclined to think that such a conclusion will not satisfy the rigid reasoners of the present day.

* Short, vol. ii. p. 10.

Roy, de Med. vide Heberden.

† Preface to Mem. de la Soc.

† Mead, p. 188.

To one who can admit that a malignant fever, attended even with the bubo and carbuncle, may originate in Marseilles, but is determined in his mind that a disease, to which he assigns the name of *true Plague*, though it has the same symptoms, must needs have its origin in Ethiopia, it may not indeed be conceivable. But to another, who simply regards the facts, and never heard either of Ethiopia or the word *Plague*, the circumstance appears very conceivable and plain.

The reasonings of Dr. Patrick Russel, (Book iii. Chap. 2) are by no means satisfactory on this head.

We cannot, I think, but admire the pains which Dr. Russel has taken to shew that the true *Plague* did not exist in Marseilles before the arrival of the ship in question, in the month of May; when we reflect that in other parts of his valuable work he labours very satisfactorily to prove that so early as that month the characteristic symptoms of *Plague* do not, in the majority of cases, make their appearance: in other words, that if it had been in Marseilles several months before, and was to observe the course which is usual in pestilential seasons, it would not, in this early part of the year, have exhibited these signs more frequently than this malignant fever did. For, what is called the true *Plague*, as I shall endeavour to shew hereafter, does not in all cases exhibit the bubo and carbuncle, in the first weeks of its propagation; the rare cases of that sort which sometimes occur at the decline of the preceding year, as premonitory signs, being rather the consequences of such a tendency in the preceding autumal fevers, than indications of a proper commencement of the true pestilential constitution.

But as far as testimony can go on the other side, it is very strong; for the Physicians at Leghorn decided, that this very fever aboard the suspected vessel, which was said to be the Plague, was only a simple malignant fever; and the Physicians at Marseilles even many weeks after the disease established itself, designated it by the same name.* I am happy to think Dr. Heberden leans to the same view in his judicious observations.†

The Plague of Aleppo, in 1742, was preceded by an acute fever; and after it abated in July, appeared epidemic diarrhæas, malignant dysenteries, and fatal intermittents. As the disease was not severe, nor very general, it appeared again in 1743, and was succeeded in July, as before, by other acute disorders.‡

I have already noticed the rise of the Plague at Messina, in Sicily, in 1743; that of Aleppo, in 1760, on the testimony of Dr. Russel; as well as that of 1771, in Moscow, described by Mertens—which were severally introduced by a malignant fever.

“At Messina, one Physician alone, out of thirty-three, pronounced this malignant fever to be the Plague; the others denied it, because, at that time, the disease was not attended with glandular swellings; and because many of those about the sick, as well in their own houses, as the hospitals, escaped the infection.”§

Most parts of Syria and Mesopotamia suffered all the miseries of extreme famine in 1757, after a winter

* Webster, Deidier and Mead. † Vide, p. 86. ‡ Webster, vol. ii. p. 86. § Dr. Russel, lib. vi. chap. ii. p. 515.

so uncommonly severe, that, we are told by Dr. Russel, the cold was excessive beyond what had been ever known. And as early as February, 1758, a malignant pestilential fever made its appearance at Aleppo.

Dr. Russel remarks, that when the Plague abated in the middle of the years 1760 and 1762 (for it continued with limited severity three years), other diseases of a malignant and fatal type immediately succeeded.* His brother, Dr. Alexander Russel, made the same remark in 1742 and 1743.

To sum up all from these facts, it might betray too much of a generalizing spirit to state that all Plagues were ushered in by malignant fevers. But certainly Dr. Mead's observation, upon the whole, is well founded. It is to be lamented that we have such imperfect accounts of various other Plagues, in which no such fact is mentioned; otherwise I doubt not a greater approach to systematic truth might be attained.

The Plague of Malta, in 1813, by all that I can collect, either from Sir A. B. Faulkner or Dr. Maclean, had not any such immediate præcursor; and therefore, at first view, it has more the appearance of having been produced by an imported contagion. But many things, in the relation of that supposed cause, are extremely doubtful, as I shall have to notice afterwards.

It was remarked as singular by the Protomedico, or President of the College of Physicians in that

* Vide Russel, lib. i.

Island, "that during the Plague all other sickness ceased, and that chronic valetudinarians got better; and some, says he, are to this day (1815) free from the diseases they had before."*

A similar fact has been recorded by Sydenham, Chenot, Sauvages, and some others; and also by Thucydides, which seems, at first, to contradict the spirit of the preceding observations: viz. that the year of the Plague was in other respects healthy and free from the prevalence of all other diseases; so that in fact the common diseases seemed entirely to have disappeared.

"The very same year," says Sydenham, "that proved fatal to so many thousands, was otherwise very mild and healthy; and such as escaped the Plague never enjoyed better health: and those that recovered were not subject to the usual cachexy and debility consequent upon other disorders"†

Hodges tells us, that "in some cases of consumption, scrofula, gout, and other obstinate complaints, after an attack of the Plague, many recovered from the previous malady and were quite restored; so that this terrible enemy, as it was commonly fatal, so it also sometimes proved a remedy."‡

And Thucydides, "this year was universally allowed to be the healthiest and freest from other diseases of any. If any was sick before, all his illness was converted to this."

It is stated in Sauvages (Nosol. Method. tom. i.

* Dr. Maclean, vol. ii. p. 30.

† Sydenham, p. 81.

‡ Hodges, sect. iv.

p. 416) "that during the year 1720, in which the Plague fell upon Alet, no more persons died of the disorder than used to be taken off in other years by sporadic or other various diseases, and than were born within the year, viz. about 300. But it is worthy of observation that all other acute diseases disappeared during the Plague; and that all acute diseases (which it may be inferred sprung up in the intervals of its propagation; for it had two or three distinct intermissions during the season,) were of the same nature as the Plague (*e pestis genere fuisset*)."

Chenot says, "that by the testimony of almost all authors, when a place is infected with the Plague, it is generally free from other diseases, *except those which have some resemblance or affinity with it.*"*

We are informed by Mertens that the epidemic diseases, which had raged for the three years preceding the Plague of Moscow, altogether vanished in the month of May 1770. And from that month the whole year was very healthy—but in the winter the common stationary fever was more prevalent than usual. And in the spring of 1771 began the Plague, about the time when the several fevers of 1768, 69 and 70, had commenced; none of which then appeared, nor was there any other epidemic in Moscow that year.†

Was Malta circumstanced as Moscow, as to the previous diseases?

Webster has taken notice of this fact when he says, "it sometimes happens that the year next preceding the Plague is very healthy, and that we

* Chenot de Peste, p. 37. † Mertens.

have many instances of violent Plagues in the most pleasant, and, to all appearance, the most salubrious seasons."—Chap. ii. sect. 13.

How are we to reconcile this to all we have stated before; and the observations of Sydenham, in the passage above quoted, with the facts he has recorded in another place, and with the weekly Bills of Mortality in 1665?*

* It cannot be doubted that the observations, even of eminent men, are sometimes loosely expressed.

To give an instance, of something like contrary statements, from Sydenham and Hodges:—

The latter says, "all things from nature were promising and serene; and this destroyer invaded us on a sudden from strange countries."

Hodges says nothing of the præcursor fevers mentioned by Sydenham, which gradually changed into the Plague; but, he says, "its decrease was like its increase, moderate"—and that "various mortal epidemics which occurred at its rise, re-appeared at its decline."

He mentions the fact of mortality among cattle very casually; though he allows in another place that such unwholesome food was sufficient to produce malignant fevers.

Sydenham, though he mentions the great devastation and unusual prevalence of the spring diseases, says, in another place. "the season was otherwise very mild and healthy."

What Dr. Baynard observed of the weather is not noticed by either.

And as these authors appear in these remarks somewhat inconsistent with themselves, and with each other, so we find their united testimony is not in unison with the Bills of Mortality, as is observed by Dr. Russel (p. 273.)

From Hodges it would appear, the Plague ceased entirely in the winter; and Sydenham represents it as only appearing

That apparent exceptions will now and then occur to every general rule, may naturally be expected. And at the same time we must take care that what appear exceptions in natural phenomena may not be errors in observation.

When pestilence is prevailing in other parts, and epidemic diseases that have raged for a time, in any place, suddenly disappear, without being succeeded by others; whilst general causes of sickness continue to operate, from famine, intemperance, or irregularity in the seasons, accompanied by any of the phenomena above noticed; it appears to me that such a state of calm is rather portentous than cause of congratulation; and more resembles the awful stillness preceding the hurricane, than the healthful silence of nature, when all the elements are in harmony.

Accordingly, in physical as well as moral events, such a calm has been known to precede some terrible convulsion; whether by wise appointment, or by some natural connexion, or both, I am not warranted to say.

It is very certain that the wise can often perceive signs of threatening and danger, when the simple

here and there, in the winter and spring. "But neither of these accounts," says Dr. Russel, corresponds with the Bills of Mortality, which make the number of persons who died of the Plague, in 1666, amount to 2000. This would seem to be a mortality too considerable to be spoken of so slightly, had it been known to those gentlemen. We must therefore suppose that Plague prevailed in quarters distant from where they practised, or that the fever, termed pestilential, often passed in the Bills for the true Plague."

augur nothing but peace. And the same state of things which instructs the former to use the needful precaution, leads the latter to repose in fatal insecurity, so as to neglect the most obvious means of preservation.

I can only regard, therefore, such an entire absence of the common diseases, at the approach of a pestilential constitution, as the effect of that general cause which sometimes banishes them, after it is established. It is as when an evil of overwhelming magnitude extinguishes a host of minor afflictions, so that they are not felt; and it is almost impossible that a cause so limited in its range, as only to act from body to body, should produce so general an effect. At the same time the fact has been so often observed, as to exclude the presumption of a mere fortuitous contingency.

Therefore, so far from affording triumph to the advocate of imported contagion, it leads, in my view, to a conclusion quite opposite. For, by what combination of causes, it might fairly be asked, should the common prevailing diseases be banished, as it were, from a city [or country, at the very critical juncture, when a disease of foreign growth, with which they have no natural connexion, is casually introduced among them? Do they hide their diminished heads, or flee away as from the presence of an unwelcome stranger?

By what singular change in the elements of life, should not only this effect take place, but a portion of unusual health be imparted to those, whose peculiarity of constitution enables them to resist the fury that is dealing destruction around them?

Scarcely an observation is more general among writers on epidemic pestilence than this, that during the prevalence of Plague other diseases disappear.

But if that be generally the case, whence arose the increased mortality from common diseases in London, not only in 1665, but in the four preceding great Plague years—1593, 1603, 1625, and 1636?

In whatever way the expression of Sydenham be understood, it is clear, as well from him as Dr. Hodges, that many fatal epidemics existed in the spring, besides the pestilential fever—and likewise followed in the winter. But the weekly Bill gives us no accounts of deaths from any of these, at least to any extent, except in the general article of fever, during the few months of the Plague's continuance.

The articles of fever and spotted fever therefore constitute the principal sources of mortality, besides the Plague, and rose and declined in proportion : so that the observation was correct, though not made by a medical writer ; but it is confirmed by Chenot and others, that the diseases, which increase and decrease together with the Plague, have some resemblance or affinity with it.

But what resemblance or affinity with the Plague have the other articles which observed a similar rule of increase and decrease ; as child-bed, consumption, convulsions, griping, surfeit, teething, worms, &c. ?

As to Child-bed, the calamity which ensued for want of timely aid in the pangs of labour, was deplored by all ; and whether the Plague had any thing to do with the mortality from that cause or not, it was a natural consequence that as confusion and despair kept pace with the increasing desolation, the conflicts

of parturition must have been greatly aggravated, and a relative proportion might thus have been produced.

The word Consumption, I need not say, is, in vulgar acceptation, comprehensive enough to lead into great ambiguity; and there can be little doubt, that if it only meant chronic phthisis, the controuling epidemic was added to it at the last; according to frequent observation, that if any disease previously existed, the plague was soon joined to it.

Convulsions are more decided, and have less dependence on the Plague than any other article; unless the term relates to adult females being affected in the extremity of their despair with hysteric horror; partaking of that irascible and highly nervous irritability, which, Hodges says, prevailed to an extraordinary degree at the height; so that "the nearest friends flew into fits of passion without a cause." And if any died at this crisis, who had been subjects of epilepsy before, it is probable their death would be ascribed to the latter disease.

Gripping and Surfeit are both indefinite, and scarcely any words more so, as applied to disease and the cause of death, than Teething and Worms. So that instead of ignorant searchers designating such correctly, it might have required the utmost sagacity to determine with precision, or even to form a probable conjecture.

But, setting aside consumption, the diseases above mentioned, if they are sufficiently powerful to extinguish life, generally act in a manner so acute and sudden, at the same time so variable and obscure, as to resemble in these respects the attack of pestilence;

and hence possibly their affinity or rather the difficulty of discrimination may have been derived. After all, the increase of mortality from these diseases, during the months in question, beyond the usual average, amounted to only a few hundreds. Consequently the remainder, in the list of common diseases, was undoubtedly derived from the fatal diseases of the spring, and from the article of Fever.

Upon the whole then, forms of disease which are considered to have little or no dependance upon a variable state of the atmosphere, except fever, make up the amount of the increase during the plague-season. And, within this period, we have no account, to any extent, of small-pox, measles, whooping-cough, quinsy, malignant pleurisy, and such other diseases as particularly follow the seasons and their changes.

As to the description of persons that chiefly escaped, and enjoyed unusual health at this time, it would appear that old people and valetudinarians formed the majority.*

For, a calm unvarying serenity continuing for many weeks together, and only disturbed by mild southerly breezes, must have been particularly congenial to multitudes in a variable climate, where the diseases are generally either caused or aggravated by its vicissitudes.

Therefore, it is probable, rheumatism, and gout and scrofula in all its varieties, with the whole tribe of chronic and cachectic ailments, were lulled to repose or banished by the same general cause which intro-

* See Sydenham.

duced this sharp and decisive messenger of destruction.

In conclusion, notwithstanding all that has been just said, I consider the observation of Dr. Mead very fully confirmed, "that fevers of extraordinary malignity are the usual forerunners of Plague." For, as he was no doubt acquainted with the exceptions above noticed, he must have thought them insufficient to invalidate the general rule. But a very serious and important consequence has resulted from this fact, to which our attention shall now be directed.

CHAP. IX.

Of the Doubts as to the Name and Nature of Pestilence.

IT was matter of doubt whether this Fever was the Plague or not.

We have now arrived at that peculiar stage of the inquiry, where, we are to believe, upon the admission of a celebrated writer founded upon authentic records, that fevers of extraordinary malignity, the consequence of a corrupt or vitiated state of air, are observed to prepare the way for the supposed invasion of an evil still more destructive.

In other words, we have come to this singular conclusion, upon the premises, that fevers of indigenous growth have just arrived at a peculiar crisis, and assumed unusual characters of fatality, when a foreign

contagion was ready to be embraced, and assimilated with most special tokens of affinity for a combined system of devastation.

And we find, that when the work has been done, this intimate union has been dissolved; and the stranger been dismissed in a manner quite as inexplicable as the nature of their previous connexion. For, as pestilential fevers precede the Plague, so do they follow it.

But we also find, in addition to these peculiarities, that when this stranger, having accomplished his rueful errand, with strength exhausted, and character entirely changed, is ready to take his departure from one place; his powers of resuscitative vigour are so miraculous, that on his arrival at another, he can resume his original fierceness though by insidious approaches, and display all his deadly malignity, as in the former. But in a little time he is condemned to be stripped of all these fearful qualities, and rendered impotent as before. And thus, we are to understand, that, like some vagabond intruder, who disguises an enormous but short-lived voracity, under the semblance of impaired appetite, his visits are characterized from place to place wherever he is permitted to gain a footing in the habitable globe!

The observation at the head of this Chapter is founded upon the reluctance which Sydenham expressed to decide upon the identity of the preceding epidemic pestilential fever with the true Plague. And I may remark, by the way, that this author either did not consider, or it did not fall within his observation to notice, that the Plague began to exhibit what he calls its peculiar signs before the middle of the year.

Before entering, therefore, into the diagnostic symptoms of each more particularly, I shall take notice of the continued fever, described by Sydenham, as having prevailed every autumn (and there was only one species of continued fever all the time), from the year 1661 to 1664 inclusive. We shall thus have an opportunity of seeing in what peculiar points the continued fever of autumn, 1664, differed from the continued pestilential epidemic fever of spring 1665.

Now it is remarkable that we have the same symptoms common to both, with this difference, that in the latter they were all more severe.

“ The head-ache was more violent ; the vomiting more copious and distressing ; the looseness was increased by a vomit ; and sweating was more easily procured after bleeding ; and the blood drawn resembled more that taken away in pleurisy (as might have been expected in a fever of the spring season) ; and the disease was more irregular in its progress, and did not usually seize any one at that time of the year.”*

These are the particulars, all of a comparative nature, which Sydenham relates as the grounds of his reasons for denominating the pestilential fever of spring, 1665, “ one of a very different kind from that of the preceding constitution.” He goes a little farther when he says, in another place, that such a fever specifically resembles a true Plague ; and only differs from it in being a degree milder. “ *Revera enim cum ipsissima Peste specie convenit, nec ab ea nisi ob gradum remissiorem discriminatur.*”†

* Sydenham, sect. ii. cap. i.

† Syd. Op. sect. ii. cap. ii.

If the pestilential fever of Sydenham was the Plague, then it must have changed its character by parting with the bubo in the spring for the petechiæ, and resuming the former symptom in the summer. If it was not the Plague, then it must be noticed, the nature of the two diseases was so much the same that one of the most accurate observers, which any age can boast, was not able to distinguish them but by those fugitive marks, the bubo and carbuncle. And the conclusion follows, that the atmosphere of London was rendered capable of originating a pestilential fever, at an unusual period of the year, and of imprinting upon a foreign contagion, at the same time, most extraordinary marks of resemblance. So that one disease imperceptibly merged into the other, and again emerged from it; more like the same individual changing his outward garb, than different individuals personating the same character.

It is therefore reasonable to conclude that the petechial or pestilential fever was identified with the Plague, both in its nature and causes.

The diagnosis which Mead attempts to establish between the Plague and its forerunners, is somewhat singular in a nosological point of view. "The principal difference," he says, "is this, that the Plague is infectious, the other (or malignant) fever not; at least not to any considerable degree." And further he states, "there are carbuncles and buboes in other fevers besides the Plague, but such carbuncles are not pestilential; and there is some difference in the time of the tumours coming out."

Now, without noticing here an observation of Dr. Russel and others, to which I shall soon have

occasion to advert, that the Plague itself is less contagious at the beginning of a pestilential period than afterwards; I believe the most undoubted testimonies might be produced, that buboes and carbuncles appear upon the body in the most uncertain and irregular manner in the true Plague. And though bubo and carbuncle are designated by Mead the true characteristic signs of Plague, yet it cannot be denied that such characters lose their importance as diagnostic symptoms, when we are informed by the best writers, and men of most practical experience in the disease, that it occurs in many hundred instances without them. But we have the testimony of others equally qualified, in addition, that our ordinary fevers under aggravated circumstances do absolutely exhibit these very symptoms. Many such examples are given by Heberden, and Mead himself admits the fact.

Here then we have positive and negative argument against Dr. Mead's assumption; so far as the evidence for an essential difference between malignant fever and Plague is concerned.

It cannot however be denied, that the symptoms in question are the most general attendants of Plague at its height.

I fear to pursue my remarks further upon the very extraordinary diagnostic signs adduced by that eminent physician, as distinguishing marks of malignant fever and plague.

But I am spared the invidious task of seeming to detract from so high an authority by one simple fact, that such presumed distinguishing signs are and ever have been useless in practice. For they have never enabled physicians to discriminate correctly between

these forms of disease, and for very sufficient reasons.

And I may refer to almost universal experience in proof; and I use the words of Dr. Heberden, instead of stating the fact upon my own authority, "that it is observable, at its first breaking out, the disease has never been known to be the Plague." A disease so formidable, so signally introduced as we learn from almost every account of its origin, so marked in its signs, and so often seen and described, never known to be the Plague! To what cause can this be ascribed? Surely physicians must have been in the wrong track of observation, or they would have profited more by the experience of so many ages on this point. For the fact is truly as Dr. Heberden has stated it. I conclude, therefore, that this obscurity has in great measure arisen from an unscientific attempt, by artificial classifications, to separate diseases from each other, which are closely united both in their nature and in fact. Names, it is clear, have puzzled more than things: for the most discerning have suffered themselves to be deceived; and the gradual, perhaps imperceptible, change of one form of disease into another; in other words, of malignant fever into plague, has led to all this perplexity.

For, as epidemic fever has usually prevailed before; and as the disease in its early stage, though rapid and decisive in its course, almost universally exhibits the symptoms of fever; and, added to these, as contagion but obscurely characterises the malady at its beginning; so we find that a number of physicians have been always ready to persist in denominating *that* a simple malignant fever, which others distinguish

by the fearful appellation of Plague. And each set having their partisans in the community ; some through fear, and some through contempt of danger, increase the public tumult by unprofitable controversies ; and excite that fermentation of the mind, best calculated to foster and diffuse a pestilence.

De Haen gives a lamentable account of these dissensions in his *Ratio Medendi* ; where he attributes to this error, somewhat extravagantly, the loss of 60,000 lives in the City of Marseilles. His testimony is very decided, that “ from the History of all Plagues we may learn, there have constantly been doubts whether the disease which had appeared, and was sought to be defined, was to be called the Plague or not.”

“ For not only at its commencement in Marseilles, but at the height, its name was called in question.”*

But as the disease at its breaking out has never been known to be the Plague, so what occurred at Marseilles, has occurred in every city which has been the scene of its ravages. Strife and confusion have been the inseparable attendants.

I conclude, therefore, that doubts attended with professional quarrels, and rumour with its hundred tongues busily inquiring for a cause, upon the common received notions, are as much to be expected, and as necessary accompaniments of every modern Plague, as the horror and public distress consequent upon the ravages of death in a populous city.

* De Haen *Rat. Med.* vol. viii.

CHAP. X.

*Of the various Symptoms and Characters of
Pestilence.*

THE Plague of London exhibited various symptoms or characters in its beginning, height, and decline.

After what has been said of the perpetual doubts and dissensions among the faculty as to the nature and origin of an epidemic pestilence, and some of the causes have been slightly adverted to, we are prepared to expect not only a considerable variety of symptom and character in the disease, but something in the manner of its invasion peculiarly insidious. We find accordingly, that this variety attaches to the outward signs as well as to the contagious power at different periods.

I shall first consider the variety in the symptoms, and secondly, the variety in the contagious quality.

SECT. I.

OF THE VARIETY IN THE SYMPTOMS.

Without regarding the theoretical expressions which Sydenham uses, it is important to know the fact from such an authority, "that all epidemics at their first appearance, as far as can be judged from their symptoms, seem to be of a more spirituous and subtile nature than when they become older ; and that the more they decline, the more gross and humoral they daily grow." This observation extends to all epidemics.

" Thus, in the infancy of the Plague, scarce a day passed, but some of those who were seized with it died

suddenly in the streets, without having had any previous sickness; the purple spots, which denoted immediate death, coming out all over the body, even when the persons were abroad about their business: whereas, after it had continued for some time, it destroyed none, unless a fever and other symptoms had preceded. Whence it clearly follows, that this disease, though it then took off fewer persons, was more violent and acute in the beginning than afterwards, when its influence was more extensive."*

From these observations, and others by the same author, we may collect, that the petechial or spotted fever occasionally appeared during the prevalence of the continued epidemic fever before-mentioned; this indeed we know from the Bills of Mortality: and he tells us expressly, that it was not till the middle of the year the plague itself appeared, with its peculiar concomitants, the bubo and carbuncle. Yet he plainly considers the petechial fever as the same disease; for he mentions the spots coming out in the sudden fatal attack, as one of its earliest signs: but the bubo and carbuncle, being indications according to his theory of a more gross and humoral disease, were later in their developement.

We shall see how far these observations coincide with those of other practical writers.

Now it so happens, that the History of almost every Plague gives us several classes of symptoms, or varieties of the disease, from two or three to six or seven: and even in cases where no malignant or pete-

* Sydenham, by Swan.

chial fever was allowed to have preceded, the want of bubo and carbuncle at the commencement has been one of the grounds of contention, as to the real nature of the epidemic.

Yet it has not been doubted, that the varieties above stated have belonged to one and the same disease.

The Plagues of Marseilles, of Messina, of Moscow, of Aleppo, of Transylvania, described by Chenot, and lately of Noya and Malta, afford examples of this variety.

Preferring general observations to particular facts, I am glad to avail myself of the testimony of impartial writers: and Dr. Russel, whom I have so often quoted, a man of observation, and much experience in the disease, and who espouses warmly the notion of imported contagion, cannot be considered as making a gratuitous statement in favour of his opponents.

He informs us, "that the progress of the Plague at its commencement, is much the same in the several parts of the Levant as in the cities of Europe. That is, it advances slowly, fluctuating perhaps for two or three weeks; that the disease itself, though at that period it generally proves fatal, is *very often unattended* by its characteristic eruptions; and that the attendants on the sick often escape infection."*

"These last two circumstances are productive of serious consequences; the nature of the distemper comes to be doubted and disputed, and the means of preservation, in waiting the decision, are procrastinated till too late."

* Book i. chap. vi.

Six classes of symptoms or varieties are described by Dr. Russel. The three first were most destructive.

“These destructive forms of the disease, which were marked by severe febrile symptoms, and from which none recovered, prevailed at the rise of the Plague in Aleppo, and its resuscitation the two subsequent years, *decreasing always as the distemper spread.*”

“The infected of the first class seldom or never had buboes or carbuncles; and in a few of the second, these eruptions were likewise absent; the bubo, however, was the most frequent concomitant afterwards: carbuncles, on the contrary, were remarked in one-third of the infected only; and were seldom observed at Aleppo earlier than the month of May—near three months after the disease began to spread.”

“The carbuncle increased in the summer, was less common in the autumn, and very rarely was observed in the winter. And as the forms of the disease at its first rise were of the first and second classes, wherein bubos likewise were often absent, the difficulty of detecting an incipient plague was increased.”

Dr. Russel concludes, “that the Plague, under a form of all others the most destructive, exists without its characteristic symptoms, can admit of no doubt; and hence mankind have been betrayed into errors of fatal consequence in its first invasion.”

The observation of Thomas Phayer, who was supposed to have practiced in the reign of Henry VIII. is quoted by Dr. Russel, to the same import.*

* Russel on the Plague, Book ii.

Mertens says, that at Moscow the bubo and carbuncle appeared more frequently in August than in July; and that in October, nearly all had the bubo, but the carbuncle was much less frequent. “Augusto mense plures quam Julio carbunculi et bubones occurrerant. In Octobre carbunculi non tam frequenter, in omnibus fere ægris bubones.”*

Orræus describes four varieties of the same epidemic; and says, that petechiæ were so common in the beginning of the Plague, scarcely any one died without them, though buboes and carbuncles were not then observable: and in proportion as the buboes were more common, and petechiæ and carbuncles more rare, the milder was the disease.†

Chenot queries “why are carbuncles less frequent in winter, spring, and the beginning of summer, and more common in autumn?”‡

At Dantzic, the buboes appeared before the carbuncles. Petechiæ were more common afterwards: and at length the petechiæ and carbuncles disappeared, whilst the buboes continued.§

It appears, that although the most destructive forms were at the beginning; yet in London the disease occurred in all its varieties, until the decline, particularly when at the height.

In the Preface to a Collection of the yearly Bills of Mortality, from 1657 to 1758, which contains some judicious observations, there is an extract of a letter by John Tillison, dated London, Sept. 14, 1665, to

* Mertens, p. 84-89.

† Translation of Mertens, 45.

‡ Chenot de Peste.

§ Gothwald.

Dr. Sancroft, Dean of St. Paul's, afterwards Archbishop of Canterbury, among the Archbishop's papers in the British Museum, vol. 3785, which gives a curious account of this variety.

"The practitioners in physic stand amazed to meet with so many various symptoms, which they find among their patients, who are ill of the Plague. One week, the general distempers are blotches and boils; the next week, as clear-skinned as may be; but death spares neither; one week full of spots and tokens, and perhaps the succeeding bill none at all."

Though I cannot but consider this account a little overcharged, from the difficulty of accurate knowledge and observation in so large a Metropolis at such a time; yet I have no doubt the disease at its height displayed every variety of which it was capable.

From all these facts we cannot wonder at the observation of Diemerbroeck and others, that no one symptom is pathognomonic of the Plague. At Vienna in 1713, Van Swieten tells us, "it often lay hid under the mask of catarrh, angina, pleurisy, &c.; and Hodges says expressly, that in Holland it occurred only as an *aggravated scurvy*; because scurvy was then very common in that country. But Hodges does not inform us, that in migrating from thence to England, it brought over any of its scorbutic qualities along with it! And, I apprehend, most would agree that the remark of Hodges, as it stands, is rather unscientific.

Morton, a celebrated London physician, who often saw the disease, states, that "the Plague often appeared under the form of a continued remittent fever: that this changed into the other; and vice versa; and

that each in its turn became epidemic ; the one yielding to the other.”*

Dr. Heberden says, “ Sir John Pringle has related, upon the authority of Dr. Mackenzie, who resided thirty years at Constantinople, that the annual pestilential fever of that place, which very much resembles that of our jails and crowded hospitals, is only called the Plague when attended with buboes and carbuncles”†

Ambrose Paré says, “ that men are greatly deceived in the beginning of pestilence ; for many die as well because buboes, carbuncles and petechiæ are not then joined with it, as because all have not the same symptoms ; but in some these, in others those, only fewer and slighter marks of the disease appear to be present.”‡

It was one of the objections urged against the opinion of those Physicians who held with Chenot it was the true Plague that appeared in Transylvania in 1755, that swellings of the parotids, as well as inguinal and axillary buboes, were not uncommon ; nay that they occurred almost every year in the fevers of that country.§

Dr. Heberden has shewn, by testimony of undoubted credit, that the bubo and carbuncle are not essential signs of the Plague.

Beerwinckel and Rothman, the former who describes the Plague at Hamburg, in 1714, the latter that of Stockholm, in 1710, give evidence to this point.

* De Haen Opera. vol. viii.

† Heberden's Obs. p. 87

‡ De Haen Opera: vol. viii. sect. ii.

§ Chenot de Peste, p. 6.

But, on the other hand, Dr. Heberden cites Dr. Friend, Sir John Pringle, Dr. Lind and Dr. Donald Monro to prove the fact, that buboes and parotid swellings are sometimes to be met with in our own fevers;* and it would be no difficult task to multiply illustrations. I cannot however dismiss the subject without quoting a few lines from Sir John Pringle—
 “that though the hospital or jail-fever may differ *in specie* from the true Plague, yet it may be accounted of the same *genus*; as it seems to proceed from a like cause, and is attended with similar symptoms.”
 And the causes, Sir John Pringle notices, are animal putrefaction; a southern close state of the air; the putrid effluvia of lakes and marshes; multitudes of people crowded together in unwholesome situations, &c.†

Morton says of the common autumnal fevers, that sometimes on the first seizure they become malignant, being marked by buboes, carbuncles, swellings of the parotids, &c.‡ This writer distinguishes them from the Plague “by their not being so readily propagated by contagion.” But, of all distinctions, it appears to me none are more indefinite and obscure than those which rely upon degrees of contagious power; when we consider that the *most contagious* of the two is liable to some doubts; perhaps at times positively harmless; or we should not have so many controversial treatises on the non-contagious nature of Plague.

* Observations, ubi supra. † See Pringle's Observations, part iii. p. 320. ‡ Heberden, p. 92.

SECT. II.

OF THE VARIETY IN THE CONTAGIOUS QUALITIES.

I come now to consider the difference in the contagious power of the disease; and the result of a careful examination on this very obscure part of the subject would seem to be the following conclusion—that the contagion is generally weaker and slower in its operation at the beginning; stronger or more rapid in the height; and nearly exhausted or destroyed at the decline of a pestilential visitation.

So that, by the testimony of most writers, at a period when the disease is so violent as to destroy almost every one attacked, the contagion is comparatively mild; viz. at the commencement. When the distemper is so generally diffused as to enter almost every street and every family; when consequently the precise mode of infection must be extremely ambiguous, it is then considered more rapid and decisive; viz. at the height. And lastly, when the contagious effluvia are multiplied and concentrated, so as scarcely to leave one house in twenty free from the contamination, the contagion loses its power and suffers thousands to escape, as at the decline.

These are the facts, as far as I can collect, which, upon their principles we receive from authors, who have been most rigid advocates for the specific contagion of Plague: and they are certainly very curious, and demand a little more attention.

In the first place, when the disease is more violent and destructive it is less contagious than when the symptoms are milder and the mortality less in pro-

portion; because at the beginning, we learn, only one in a family of many members is perhaps liable to be affected.

In the next place, when the atmosphere and furniture of almost every house come to be saturated, as it were, with effluvia, the disease becomes mild and the contagion impotent. Because, at the decline, whether means of expurgation are used or not, and whether there be many or few within the range of its influence, the distemper gradually ceases as it began.

Let us inquire more particularly into its contagious quality at the beginning. Hodges has related a circumstance, of which I shall presently avail myself, and the preceding history of the dissemination of the Plague in London, at the commencement, affords likewise some facts to build upon. But the most important information is obtained from Dr. Russel; though I cannot omit the testimony of Dr. Mead upon this point, as upon many others, in which I think his own argument or weapons may be turned against himself. "The Plague," says Dr. Russel, "is not equally contagious in every period of the pestilential season."

"In the beginning, those frequenting the sick often escape unhurt, or one only out of several is infected."—"The escape of such persons proves a frequent cause of misleading public opinion."—"In general the contagion spreads much slower in the beginning of the season than in its advance." "It is remarkable, he further observes, that before the middle of June (six weeks after its first appearance at Aleppo) it was rare to find more than one person sick in the same family, even in the houses of the meaner class;

and the attendants about the sick so often escaped the infection that people were too often led to believe the disease was not the true Plague; but in the last fortnight of June, whilst a greater proportion of the sick recovered, the disease became manifestly more contagious.*

So at Messina, for many days at the beginning it was not discovered to communicate to those who attended the sick, either in their own houses or in the hospitals.†

Similar cases of doubt from similar causes are the constant subjects of remark in the history of every Plague.

The very long interval which took place between the first cases in London will now be recollected; and not only so, but the long interval which takes place in the fluctuating progress at the commencement in every place ought to be constantly borne in mind—for all places are nearly circumstanced alike in these respects.

It is stated in the City Remembrancer, and I observe the remark is copied into the British Encyclopædia, that “it first took off one here and another half a mile off, without any certain proof of their having infected each other;”‡ and indeed the distances at which the first few deaths took place might warrant that inference, but I would by no means insist on such an opinion. Unless, however, we allow a very extraordinary interval indeed between exposure and infection, it is difficult to explain the fact stated by Hodges,

* Russel on the Plague, p. 19. † Ibid. ‡ Page 305.

to which I have just alluded, that "he knew many who went into the country, having had intercourse with the infected, *to continue well for a month or two*, and then suddenly become victims of the disease."

However difficult of explanation the fact may be, it is not singular, because Diemberbroeck gives us similar examples—examples which make out a much stronger case than even those of Dr. Hodges, concerning the simultaneous attack of members of the same families widely separated from each other, between whom there had been no recent intercourse, nor supposition of previous exposure to any cause of attack more general than the surrounding atmosphere. But upon these it is not my place to insist.

It is sufficient for my purpose that a decided difference in the contagious power of the disease exists at different times; in other words, that it is weaker at the beginning and decline.

For it can scarcely be necessary to say more of the diminished or exhausted contagion of the disease at its decline, than to refer for proof to the facts of its complete extinction in all places where it has ever raged, and frequently under every possible disadvantage. This is admitted in its fullest extent by Dr. Russel; and the testimony of Alpinus, on the rapid decline of Plague in Egypt, about the summer solstice, is as strong as it can be well expressed.

"In the month of June," says Alpinus, "to whatever degree pestilence may be raging in Egypt, as soon as the sun enters Cancer it entirely ceases."

Bruce, in his celebrated Travels, confirms the observation of Alpinus, made near two centuries before; that the first and most remarkable sign of the

change brought about in the air, is the sudden stopping of the Plague at St. John's day, so that no person is taken ill so as to die of the disease after the dew or *nukta* has fallen, which makes its appearance about that time, or the latter end of June.

“ The Turks and Moors, immediately after this day, expose in the market places the clothes of the many thousands that have died of the Plague during its late continuance; and though these consist of furs, cotton, silk, and wollen cloths, which are stuffs the most retentive of the infection (contagion), no accident happens to those who wear them, from their happy confidence.”

“ It is agreed on by all,” adds Dr. Russel, “ that about the 24th of June, at Cairo, there is a remarkable sudden alteration in the contagious property of the Plague, as well as in the malignity of the disease itself, to whatever cause it is to be ascribed; and Alpinus's remark that, at the same time it ceases, the furniture in infected houses suddenly loses all power of communicating the disease to the inhabitants, so that health and tranquillity are at once restored, agrees in some measure with the general experience of other places in Turkey, where it is well known houses or goods undergo little or no purification.”*

We may now perhaps go a little farther, and say, that although the transition is not so rapid in the northern parts of Europe as in Turkey and Egypt, from this state of sickness to health, because the climate is more variable, yet the Plague has always

* Russel, on the Plague, book iii. chap. v.

undergone a similar favourable change in London, Marseilles, and other places, as to its contagious property at the decline ; whether demonstrated by immunity after actual contact with the diseased, or by the uninjured use of apparel, household goods and furniture, supposed to be saturated with pestilential poison.

The general remark is this, that to *certain inhabitants*, exposed or confined in a particular air, the disease entirely loses its power of communication.

The consideration how far it is capable of affecting *others*, and in *other places*, is reserved for a few remarks in another part of this inquiry.

I shall now advert to the contagion of Pestilence at the height.

Since upon the facts adduced, and the admissions already made, pestilential contagion is found to be weak at the beginning ; as from the length of interval, and the numbers that escape after evident exposure, is justly to be inferred ; if it is also nearly, if not quite, extinguished in the decline, as the fact of its cessation under such circumstances must demonstrate ; and in consequence of these facts, if the doctrine of contagion is liable to be called in question ; we must acknowledge that at the height circumstances also occur which make it extremely difficult to ascertain how much is owing to contagion, and how much to some general or common cause ; and which therefore give occasion to men of unprejudiced minds to doubt its contagion even at this period of the disorder.

Though I consider the expressions *less and more contagious* liable to much ambiguity, and have seen them no where accurately defined, yet if I can ascer-

tain the grounds upon which such a change of contagious quality is presumed to be built, they are derived from the following supposed facts :

1st. The rapidity of its progress through all the members of a family.

2nd. A more general susceptibility of all ranks and ages, from increased virulence in the contagion, in every variety of local situation in the same city.

3rd. Early infection, after obvious exposure to contagion, by contact or otherwise.

4th. Sudden attack of the disease after exposure in an interval of space so distant as to be accounted improbable, unless by an emanation highly penetrating and diffusive.

5th. The speedy communication of the disease from a person seized with it, to another in health, on the very first day of the former's attack.

At first view, all these circumstances would seem to indicate a more virulent or active contagion, but it will be obvious after a little inquiry that they bear a different explanation.

1. In the first place, we have the analogy of other epidemic diseases, which are generally allowed to be received without contagion, for supposing, that where the Plague seizes several in one family about the same time, it does not therefore follow, that one infects another in rapid succession; for, they may have all been subjected to the same general cause, whether the air or contagious effluvia. And even when marked succession and intervals are observed, this does not increase the evidence: because we know that non-contagious as well as contagious diseases operate much sooner upon some constitutions than upon others.

Medical men often speak of epidemic and contagious diseases, as if their mode of invasion was so distinct, that they might be clearly known from each other: in short, as if a disease, which was owing to a peculiar state of the air or its vicissitudes, must therefore of necessity affect all persons at the same time within certain limits; whilst a contagious disease should propagate itself only in succession. But, as I have stated before, every one must have observed, that diseases properly entitled to the term *epidemic*, as arising from a common cause, and independent of contagion, do not fall upon the multitude in this simultaneous manner.

On the contrary, they select their objects at intervals one after another, according to previous habits and predisposition; although the cause may be universally acting at the time.

Therefore, neither simultaneous attack nor successive affords proof in itself of a contagious malady.

2. A more general susceptibility pervading all ranks, &c. is surely more likely to arise from a common cause, independent of contagion, than from the more potent influence of the latter.

Indeed Dr. Russel adopts the opinion, that "the constitution of the air is the cause which heightens or lessens this susceptibility of the contagion; not an increase or abatement of the latter's malignity."

And his reasons are these: 1st. "In the beginning of a pestilence, the disease, though less contagious, appears in its most fatal form. 2nd. On its increase and height, though manifestly more infectious (contagious,) the malignity of the effluvia does not seem to be exacerbated, because milder forms of the disease

are then more common. 3rd. Several persons infected from the same subject, are variously afflicted, some in a greater, some in a lesser degree; the disease being modified by difference in constitution. And lastly, Persons in constant communication with the sick, who have resisted infection in the most contagious stages of a pestilence, are sometimes attacked in its declining state; which seems to indicate some change in the habit of the individual, not the increased activity of the contagious effluvia.”*

Again; “Some exposed every way to infection, as if invulnerable remain sound the whole season. And at Aleppo, there were instances of persons who had exposed themselves two or three successive seasons, being attacked at length, when the contagion was fast on the decline, and the distemper had become in all respects milder.”† Diermerbroeck, Chenot, and others, mention similar facts.

3rd. Early seizure after exposure to the disease, by contact or otherwise, by no means proves from what source it was derived. For with all his experience, Dr. Russel confesses, that “when the distemper is spread universally, it is almost impossible to know, amid so many sources of infection, when or where the taint was caught.”

“In the beginning of a Pestilence, says he, a person who happens to be taken ill a few hours after visiting in an infected chamber, may be supposed to have there contracted the distemper. But when in the advanced season, a person is taken ill in like manner,

* Russel on the Plague, p. 261. † Ib. 301.

there being then many ways of catching the infection, his seizure cannot with equal probability be pronounced a consequence of such an accidental visit.”*

Both Sydenham and Diemerbroeck tell us, that when the disease is at its height, the whole mass of air, in particular districts, becomes so leavened with pestilential miasmata, as not to require either contact or fomites to produce infection. Even Dr. Mead admits what we should hardly expect, on looking at other passages of the same author, which I need scarcely produce in contrast, that “it is not unusual for the air to be so far charged with these noxious atoms, as to leave no place within the infected town secure: so that when the distemper is at its height, all shall be indifferently infected, as well those who keep from the sick, as those who are near them.”† And when we recollect, that scarcely one house in twenty escaped in London, we are better prepared to admit this fact in its fullest extent. Marseilles was circumstanced in the same manner; and without doubt most other cities where Pestilence has raged in an equal degree; the disease entering secluded monasteries and other houses, when no possible cause of its introduction could be assigned, but that of a vitiated air acting upon a predisposed body.

4. We have few histories of Plague without accounts of persons who are said to have received infection in a manner calculated to excite wonder at the power of the contagion—as from an individual at the opposite side of the street, or happening to be in the same room with a person, or some occasion of alarm

* Russel, p. 297. † Mead's Works, p. 192.

immediately after which the disease made its appearance.

There can be no question, that the clothes of an individual, he himself remaining sound, may harbour noxious effluvia, contracted in impure air and filthy situations, as happened at the Black Assizes of Oxford, when the wind blew the deadly vapours from the prisoners' clothes across a spacious court. But this was obviously not the contagion of Plague, nor perhaps any other epidemic contagion, that so for a moment diffused itself. Yet, we know, it operated very speedily; perhaps more so than any specific contagion would have done. And the same thing might certainly happen from one side of the street to the other, during the height of a pestilential epidemic. For, that exhalations, from local impurity, modify an atmospheric pestilential tendency, usually to heighten the effect, cannot, I think, be reasonably denied.

As to the influence of terror, and the dread of contagion, almost all authors agree that after sudden alarm, a long latent malady, by whatever causes induced, has often been called into activity, without any recent contagion.

5. The general analogy of all specific contagions is opposed to the fifth supposition; that a person infected with a contagious malady, may communicate the same on the first day of attack. For we find, that some of the most destructive animal poisons require a considerable time before the fluids of the body can be assimilated to their noxious quality. And if it be admitted that the contagion of plague is so diffusive and rapid in its contaminating process at the height, as to corrupt the vital fluids in the space of a few hours,

so that the whole body shall exhale contagious miasmata from every pore; how is it to be explained, that at the beginning and decline, so much longer time should be required before the contagious effluvia can be generated?

Therefore it is reasonable to conclude, where an individual has been seized with the disorder in time of Pestilence, after visiting another only a few hours ill of the same malady; seeing there are so many thousand sources of contagion at the height, that some other perhaps more general cause produced the disease. And hence most of the supposed cases above enumerated are liable to doubt.

I am aware, that it is an objection very often urged, and regarded as almost conclusive, by those who will not allow the air to have any thing to do in originating or spreading a plague, that persons who shut themselves up for a few months till the evil is past, as respectable families, and the British factors in the Levant, generally escape. Therefore, say they, contagion must be the sole propagating cause.

Now it is fully admitted, that this is commonly the case; because those in easy circumstances, breathing a purer air in clean habitations, are found to be less liable to the disease than others used to bear the “ruder ills” and exhausting privations of life: it having been ascertained, that the hovels of the poor are the nurseries of pestilence; consequently, that filth and impurity and deficient nourishment are the debilitating and predisposing causes.

For it is no less true, that respectable families in easy circumstances, who *are not* shut up, do many of them escape: and the reverse position is also true, that

many who *are* shut up, receive the disease in a manner wholly inexplicable on the principle of contagion.

Sir John Evelyn and his family, if I am not incorrect, attended their female servant with great care, labouring under the distemper without suffering themselves.

Having now considered the subject of contagion in the three principal periods of an epidemic plague, it seems to follow, that whatever doubts may exist as to this property at the height of the pestilential season, and we must confess they are many; it is fully admitted, that the disease is less contagious, and the intervals between attack and exposure infinitely longer at the beginning; and, Dr. Russel allows, and the facts nearly demonstrate, that it must of necessity become less contagious at the decline. It seems, therefore, to be an established point, that at the origin and decline, the fact of positive contagion is involved in the greatest doubt: because the circumstances upon which its contagion is at these periods presumed to be established, are common to almost every other epidemic disease.

Hence, if the gradual generation of the Plague were to be estimated by the gradual increase of its contagious power, the fact would be established, without reference to the gradual appearance of bubo and carbuncle, its supposed distinguishing marks. But is not this what we should expect a priori from a disease of slow domestic origin? And is it not precisely the reverse of what we should expect from a specific contagion?

It is indeed argued by Dr. Mead, that "when the Plague makes its first appearance, though the number of the sick is exceeding small, yet the disease usually

operates upon them in the most violent manner, and is attended with its very worst symptoms." Therefore, Dr. Mead concludes, "the disease is imported, because the contrary should happen if it was gradually bred at home."

But Dr. Mead has forgotten to annex the property of imperfect or weak contagion to the plague at this period; and what he terms the very worst symptoms, are not those by which he characterises the complaint, but those of highly malignant fever. He has also forgotten to notice the general observation of Sydenham, that "all Epidemics"—for he includes Plague with all—"at their first invasion, are more violent and acute than when they become older;" though he has directly implied what is contrary to the testimony of Sydenham and Hodges, who tell us of the gradual rise and increase of the disorder, that it was *not* gradually bred; but surprised us, as it were, suddenly, without antecedents, without previous mortality, without præcursor fevers, or any other indication of physical evil! Yet upon his own principle, "a corrupt state of air," and "fevers of extraordinary malignity are the necessary forerunners and attendants of all plagues!"

It seems to me manifest, that a corrupt state of air must itself "be gradually bred:" and by Dr. Mead's admission, a corrupt state of air is capable of producing "fevers of extraordinary malignity." Hence, in such a complication of causes, it is difficult to separate the action of the principal from subordinate agents. But it is almost impossible to conceive any plague more gradually bred than that of Nimeguen, as described by the philosophic Diemerbroeck. And I apprehend Dr. Mead would have had great difficulty in proving the

converse of the proposition involved in his hypothesis, that in countries where Plague is supposed to be gradually bred, the beginning of an epidemic pestilence differs in any one of its essential forms from those which it assumes in countries where it is presumed not to be indigenous.

I am not disposed to add much more upon this subject at this time, though I conceive it is only by extending these remarks to a due length that we can properly estimate the difficulty of that hypothesis. I feel notwithstanding the truth of what Dr. Heberden has expressed, that demonstration cannot be looked for either way; and that "it might be odious to assert, that the Plague of London was not imported." But I shall have occasion to say more upon this subject hereafter.

In the mean time I am inclined to think, that so far from its high degree of contagious power, with which Dr. Mead has invested the plague to distinguish it from malignant fevers (perhaps quite as contagious,) being admitted as strongly characteristic of the disease; it is quite obvious, from all the preceding facts, that such a diagnosis must be received with very great hesitation.

Even Dr. Russel himself uses this cautious language, "that the dread of contagion from Plague, may consistently with truth be moderated." For as we find the disease to be on its decline, when, according to Sydenham, Hodges, Russel, and others, the symptoms are so mild, as scarcely to prevent the diseased from following their business: so it often appears to be when occurring as a local or sporadic disease, both as to mildness of symptoms, and as to its

feeble contagious qualities, in all places where it may be casually introduced.

For, in order that I may state the argument fairly; if, upon the admission of Dr. Mead, a corrupt state of air is necessary to diffuse a pestilence; if, on the authority and experience of Dr. Russel, without a pestilential constitution, it cannot spread; if, by the correct observation of Sydenham, the disease is marked by distinguishing characters, never developed at other times; if, even at the beginning and decline of such a constitution, the power of contagion is often so weak as to be called in question; what, I ask, is the natural inference as to the contagious quality of Plague when no such pestilential constitution exists? Surely the conclusion will be in accordance with the experience of almost every day, and with the observation of almost every traveller, who visits those parts of the world where the disease is wont to exhibit itself: that it must require the closest contact, and then with difficulty, and a number of essentials added as predisposition, lengthened exposure, &c. &c. before infection can be communicated. It is the general remark of every one who has visited the Levant respecting the Plague, that it is only communicated *by the touch*. We cannot therefore wonder at the testimony of Lady Wortley Montagu, in her celebrated letters, “that several about her had the Plague”—“that it scarcely excited any alarm”—“and she was convinced there was little more in it than in a common fever.” So we may presume it was, when this personage was exploring with inquisitive ardour the natural and moral phenomena of Turkey. But it is also plain, that she only describes the fury in its slumbers; such as it appears all the year

round in many parts of the East: a disease stated by Dr. Armstrong to be "frequently as mild as the mildest form of our common fever;" such as it is in towns and cities, where even all prudent care is disregarded, but where there is neither fit constitution of air, nor season, nor predisposition of body to receive it: not such as when, arrayed in all its terrors, which neither Cairo nor Aleppo, nor Constantinople, ever witnessed more awfully, it fell upon London, Marseilles, and Nimeguen, with overwhelming devastation !

Before I conclude this chapter, it may not be unsuitable to remark, that as there are degrees of malignity in the disorder itself, so there are at times degrees of intemperature in the air. For, according to Dr. Russel, "the state of the air, instrumental in propagating the Plague, varies in its degree of power as also in its duration." Hence the dissemination has sometimes been very partial; and a limited mortality the natural consequence.

Now in such cases, the interposition of authority, by means of soldiers and police, has been supposed to do far more in the way of prevention than ought reasonably to have been assumed; the escape of a few secluded individuals, or of a town, being extolled, as demonstrative proof of the efficacy of restrictive measures; when perhaps their security was but in a small degree owing to such means.

It is, however, obvious, that nothing can be more prudent, as regards self-preservation, than to retire from the care, fatigue, and exposure, inseparable from such a state of public distress, to a clean and well ventilated habitation, or to a town salubriously situated. Yet, we have numerous instances where even the most

secluded have not escaped; but they have been reached in their recesses by the enemy, and have perished ignobly; without being able to feel in their last moments the heart-consoling evidence of having taken a part with benevolent intrepidity, like the good Bishop of Marseilles, or the Pastor of Eyam, in the alleviation of surrounding misery and despair.

Nevertheless, the rule will, I believe, invariably apply; and it seems to have been practised with success in the American cities, whenever threatnings of Pestilence make their appearance, to separate individuals and communities as far apart as possible, so as to prevent the accumulating force of animal effluvia, which large assemblages, in unfavourable seasons and situations, are known to produce.

As a conclusion from all this variety of contagious property, and of symptom in a disease of a few month's duration, I may remark, in the first place, with regard to the communication of infection.

1. That a plague at the commencement is less contagious, though more violent, because the mortality is in proportion greater than at other times.

2. That it is only when the whole mass of air is, as it were, contaminated, that the disease is considered more contagious at the height, when it must be difficult to ascertain precisely the true infecting cause.

3. That at the decline, the contagious quality of the disease is also diminished, and at last appears to cease entirely.

SECONDLY, IN REGARD TO THE SYMPTOMS.

1. That the proper symptoms of fever only, with petechiæ, are generally assumed at the beginning.

2. That the bubo appears when the disease is on the advance a month or two after.

3. That the carbuncle is much later in its appearance.

4. That both bubo and carbuncle gradually retire, towards the end of the season, particularly the latter, leaving the pestilential fever in its chief characters as at the beginning, with this difference, that its malignity or fatality is greatly diminished, and the petechiæ more rare.

5. That at the height all varieties of the disease exhibit themselves in the greatest irregularity: in one affecting the head; in another the lungs; in a third the heart, upon which organ it would appear the violence of the disease is frequently liable to be peculiarly exerted; in some the alimentary canal; in others the glandular system; and in others the skin.

And if it were not out of place to allude to variations in the form of pestilence, which have not been adverted to in the preceding pages, I would take the liberty of adding. That from a review of the symptoms of different plagues, in different countries, it appears

That it partakes of the nature of the ruling diseases in whatever place it prevails; in one country shewing a tendency to the heart and lungs; in another a scorbutic tendency; in another a bilious and icteritious tendency; in another a dysenteric and spas-

modic tendency; in another a remittent febrile tendency; in another a cuticular tendency, &c.

How far have we the analogy of any specific febrile contagion to assist us in explaining such complicated phenomena?

CHAP. XI.

Of the accompanying Mortality and progressiveness of Pestilence.

In the Parish where it first prevailed, the mortality from other diseases was most decidedly marked; and it abated in the west as it proceeded eastward.

As in the whole city, during the entire year, the deaths from other diseases were nearly double the usual amount, so in St. Giles's, where it first prevailed, this mortality had an undue proportion to that of other parishes, as long as the Plague continued to rage there. But when the disease abated and was transferred to other parts, it would appear that these in succession indicated the prevalence of the same progressive law, and suffered proportionally in their turn.

I am unwilling to repeat what I have already remarked, in reference to the accompanying mortality from other diseases besides fever, in chapter viii. Whatever ambiguity may arise as to the influence of pestilential contagion in increasing the mortality from the several diseases on which I have there commented,

it is very clear that with regard to the two articles of common Fever and Spotted Fever there was a gradual increase and decrease, together with the Plague.

And the presumption is, that the same cause which acted upon the latter, acted also upon the former, supposing them distinct.

But, though it is highly probable there were many mistakes in the weekly Bills, from the comprehensive article Fever including many that died of the Plague, not only through ignorance but disposition to concealment, yet we cannot believe that Sydenham was incorrect when he stated that there was great devastation from the inflammatory diseases of the spring; which no doubt chiefly comprehended febrile affections. Therefore I conclude that unusual mortality, independent of the Plague, certainly took place.

In confirmation of this, I may quote the remark made in the Preface to the Bills of Mortality,* that “before the Plague begins, there sometimes dies not one in a week of the Spotted Fever, and never, at most, above four. But in the first week of the Plague there die twelve, and afterwards the number increases as the Plague increases, so that there frequently die above a 100, and one week 190. This fever decreases again with the Plague. There is reason, therefore, to suspect that this fever was the same from the beginning, as the true Plague, or that the true Plague very often passed under the name of the Spotted Fever.” But the same remark is applied to the “plain or common fever, which was observed to rise every week with

* See page 11.

the Plague, and to decrease with it also"—“not one-tenth of the number dying of this fever at the beginning and end of the year, that is to be observed, at the height of the Plague, under this article.”

So then the presence of Plague increased the mortality from common fever to a ten-fold degree : and as the one rose and declined so did the other. Therefore, upon the common opinion, a foreign contagion, propagated only by casual intercourse, had the effect of increasing, (or rather was attended with such an increase in) the mortality caused by a disease unquestionably indigenous.

If I might advert again to the other forms of disease that by the Bills of Mortality rose and declined in like manner with the Plague, I would remark that, admitting that in the year 1665 errors might have taken place in various ways, by searchers, nurses, and sextons, and that the increase in these several articles really belonged to the Plague in that year; yet I find a difficulty in supposing that other searchers and sextons in the other great Plague-years 1593, 1603, 1625 and 1636, should have fallen into a similar error by chance, and given a similar result, agreeing with each other, yet not founded upon fact.

But it must strike every one as a strange coincidence that the contagion of Plague should have selected that part of London for the first scene of its operations; not only where the filth of the poor gave it a fit reception, but where other diseases were making unusual havoc. For it would be out of the question to suppose that the whole tribe and family of the reigning diseases, like state attendants upon some great prince, were imported along with it!

Dr. Heberden, in allusion to the corresponding increase and decrease of Plague with common fever, observes that it was not by any means peculiar to London. Diemerbroeck, Gockelius and Beerwinckel, are cited in illustration.*

The progressive advance of the Plague from one part to another, and its gradual increase, would certainly be a natural consequence of the operation of a principle purely contagious. But as its victims and means of propagation multiplied, that it should abate in considerable degree, without the intervention of art, as it did at St. Giles's, even when the autumn season was at its height, and thousands were still uninfected; and that it should observe the same course in other quarters, and have the same attendants there, in certain other diseases, is indeed a progress marked by extraordinary signs of regularity.

Upon such a principle therefore it is very difficult to explain the circumstance. I confess the solution is not easy upon any supposition. But when we consider the nature of a virulent contagion, and take into account the multifarious means of its dissemination in a crowded metropolis, and the many thousand chances of its irregular distribution from place to place, and from family to family, as accident might bring relatives or others together; we must, I think, conclude, that its progress through a city or country would be of all things least likely to be governed by regularity or order.

And further, when so diffused and multiplied in

* See Heberd. Obs. p. 88,

its sources of mischief, that it should expire, almost at the time when its fury was raised to the highest pitch, is a supposition, which, without some strong collateral facts, and without reference to an influence greater than its own, baffles all satisfactory explanation.

But, it must be noted, that what took place in London took place also in the country: for as it abated in one part before it fell upon another, so it abated in the metropolis before it spread in the country.

At what exact time it attacked the adjacent villages I am not able to state correctly. But Sir John Evelyn informs us that it was not till the next year, 1666, it laid waste the town of Deptford.*

We know pretty well that in 1666 the principal towns in England were visited by the Plague; we also know that the succeeding winter closed its career in them all.

There was, therefore, in London, a progressive

* By a memorandum, under date April 15, 1666, it might appear that all the smaller villages experienced the same fate:

"Our Parish," says he, "was now more infected with the Plague than ever, and so was all the countrie about, though almost quite ceased at London."

"July 29. The Pestilence afresh increasing in our Parish I forebore going to church."

"August 26. The contagion continuing, we had the church-service at home."

The last memorandum of this writer, in reference to it, runs thus:—"Oct. 28, 1666. The Pestilence, through God's Mercy, began now to abate considerably in our towne." (Deptford.)—Memoirs of Sir John Evelyn.

increase in the Bills of Mortality for some time before.

There was a progressive increase and decrease in the whole train of diseases, of which the Plague formed as it were the climax or *akmè*.

There was a gradual increase in the disease itself till it reached its own height, and also a gradual decline.

And there was a progressiveness observed in its movements from place to place in the city, and from the city to the country.

But what took place in this remarkable manner in England coincides with the progress of pestilence in every country. One kingdom is visited after another; and in each the disorder, modified however by various causes, passes through its several stages.

And therefore, whatever view may be entertained with respect to contagion, a natural conclusion follows from all the preceding facts—that the train of events under review was subject to certain laws. And that so far from our having nothing else to consider of any practical importance, but the transmission of infected goods, or the escape of some poor pestiferous object from one place to another, and the means of preventing these occurrences; it is quite obvious that a great variety of circumstances must be taken into account. Viewing therefore the whole train of events, as it appears, are we to consider the entire concatenation as the production of our own climate, or that an intermediate link of foreign growth was necessary to bind the series together?

The country about Marseilles was visited the year after pestilence had raged in that city. During the

few years Aleppo experienced the calamity, at intervals, from 1759 to 1763, the chief cities in Syria partook of the desolation.

Nimeguen was attacked the second of three pestilential years in Holland.

In 1771 all the surrounding provinces were scourged with pestilence, as well as Moscow, after the plague of Kiow, in 1770.

In Transylvania, during the years 1755-6-7, most of the towns were successively visited.

In the beginning of the last century Copenhagen, Stockholm and Hamburg, one after another, in the course of a few years, had their share of suffering from this calamity.

In the same manner the visitation of pestilence has mostly been extended to neighbouring parts; and it rarely comes to any one place as a solitary evil.

CHAP. XII.

Of the Decline of Pestilence.

The train of Diseases which had immediately preceded, on its decline re-appeared; and its decrease was like its increase, moderate.

It is an obvious conclusion likely to engage the attention of every one who takes even a slight view of other matters connected with pestilence, that when a virulent contagion, such as that of Plague is usually represented, enters a populous city, it should con-

tinue its ravages as long as multitudes were still remaining susceptible of its attacks, without any regular time or limit.

But it must be matter of surprise that in every city where pestilence has raged, the contrary has been the fact: and that, in any one place, a few months at the utmost have, for that time, put a period to the career of the most formidable epidemic plague that was ever known.

Another observation follows immediately from the last, that in cities where every thing favourable to the propagation of Pestilence has existed, as crowds and filth, confined habitations, impure air, and habitual intercourse with the diseased; although the mortality must needs have been greater in proportion to the intensity of these causes; yet the period of the calamity has still been decisive, and nearly the same, as in cities where all the regulations of the strictest health police were maintained, from the commencement, in most active operation.

But, if these facts be established, it follows incontrovertibly, that there is a power stronger than contagion to controul its effect; and a power stronger than medicine to change the character of the disease. And we may therefore presume, that though art can do something to mitigate its rage, and police regulations to lessen the number of the crowded victims exposed to its fury; yet that, independently of all, it will certainly take its departure. And if the future be as the past, the prediction will seldom be false, which, in every place, fixes the termination within a limited period of time, varying in different countries, but nearly stationary in the same.

And therefore he that, exclusively believing in a contagious virus, asserts medicine and police regulations can do all, and attributes the removal of pestilence solely to their means, may be as much in error as he, who convinced of a general contamination in the air, denies contagion, and believes a crowded or a scattered population would make no difference in the mortality; or that a filthy habitation would add nothing to the malignity of the distemper; and that as the disease is from the air, it matters not whether he stands idly gazing on till it shall cease, or assists to remove a local nuisance out of the way.

Hence, it is clear, there must be a proper medium between these opposite views, which alone the cautious observer and the wise physician can pursue with safety.

As Sydenham laid some stress upon the epidemic diseases that appeared before the Plague, so Hodges mentions what we do not learn from Sydenham; that a train of epidemics followed after. The facts that "the Plague degenerated into other diseases," and that the "nature of the disorder was changed," are what the actual observation of this practical writer enabled him to record.*

But this is the manner in which Plague often terminates.

Though London was soon replenished, by a prodigious influx from the country, where the Plague wasted the principal cities, the ensuing year; though the summer of 1666 was hot and dry, and unfriendly

* Loimologia.

to health; though the sources of contagion were still numerous in various parts, for near 2000 died of the disease in the metropolis that year; and though the warmth of its conflagration must have aided the effect, if it depended only on heat; whilst those parts that escaped the flames were crowded to excess with the miserable despairing multitudes, thus rendered more liable to infection: yet all these causes combined were not able to restore that pestilential state of the air in London which had already passed over the heads of its inhabitants, and which gave efficiency to every subordinate circumstance.

So that the other expressions of Hodges were also true, that "the Pestilence did not cease for want of subjects to act upon, as then commonly rumoured, but its decrease was like its increase, gradual."

In the same manner Kemp, on Pestilence, describes the decline of the great Plague in 1625. "The people went promiscuously one among another, and the houses were quickly filled with inhabitants and fresh comers out of the country, and yet no infection followed."* This writer also mentions a similar fact respecting Bristol.

Several authors speak of the Plague changing into other diseases, as matter of fact. But to speak of a specific contagion changing into a common disease would appear to be medical heresy. The contest lies therefore between the actual observation of some, and the nosological fancies of others.

Morton says expressly, that the Plague often

* Cited by Dr. Russel, p. 272.

changed into the continued remittent fever : Sydenham, that the pestilential fever immediately took its place : Chenot, that an evident sign of the Plague being about to cease is the appearance of common epidemic diseases, which manifest the rise of another epidemic constitution.

Alpinus says, that when the Plague ceases in Egypt, epidemic diseases begin to show themselves, which never appeared during the Plague.

Eaton informs us of what we may also gather from Russel and Boyle, that when the cities of Syria are afflicted with the Plague, and it begins to decline, epidemic fevers generally succeed, which prove nearly as mortal.*

Aleppo would seem to be especially liable to this change. For in 1742 the fact was noticed by Dr. Alexander Russel; and in 1760-61 and 1762, very remarkably, by his brother, Dr. Patrick Russel. Boyle states the same fact respecting Aleppo, in his time.

" We have seen," says Dr. Russel, " that at Aleppo, in 1762, the Plague ceased completely, without any exertion whatever on the part of the police: and experience, in other places of Turkey, as well as at London, Nimeguen and Dantzic, furnishes similar examples."—" From what has been said of London, Aleppo and Marseilles," he concludes, " it would seem, as if there was little observable difference in the mode of its termination, in cities, where purification was practised and where it was not."†

* Survey of the Turkish Empire.
Plague, p. 283.

† Russel on the
Plague, p. 283.

I observe that considerable stress is laid by Dr. Faulkner upon the measures of police adopted at Malta to arrest the Plague, in 1813; and the effect is ascribed chiefly, if not wholly, to their operation; but Dr. Maclean very cogently observes "that an epidemic disease, similar to that which afflicted Malta in the same year, 1813, commenced, spread, declined and ceased, at periods precisely similar, in the Turkish province of Wallachia, where there are neither quarantine nor plague-police."* This fact was communicated to the Doctor by the Prince of Wallachia, waywode of the province, and was confirmed by two German Physicians, Drs. Reiter and Frank. Three hundred persons died daily of the disease in Bucharest, in the months of August and September; in the month of October it began to decline, and in November it ceased. And no pestilence had occurred in the province for twenty years before.†

We are therefore necessitated to conclude from the unvarnished account of the decline of pestilence in every city, that not only does its malignity abate in obedience to a law over which medicine appears to have no controul; but its seeds are scattered, and its poison extinguished, by a power more effectual and universal than all the purifications that human ingenuity can devise. Yet as I have before observed, neither this fact nor the other can at all favour the sentiment, that the wise councils both of physicians and governors may not co-operate beneficially for the public weal in their respective departments. These facts,

* Maclean, vol. ii. p. 13.

† Ib. vol. ii. p. 314.

however, if they do no more, shew us this decidedly, that a benevolent Providence has appointed laws to Pestilence, as to every other natural evil; so that it cannot exceed a certain limit, even when man is most remiss in the performance of all his duties. And being ignorant of this limit as regards self-preservation, a necessity is laid upon every one to maintain constant vigilance.

CHAP. XIII.

Of the Exemptions during Pestilence.

SOME exemptions were noticed, both as to persons and places.

As in London, during its visitation, several descriptions of persons, we are told, escaped the disease; so similar exemptions have been found to occur in other places subjected to a like calamity.

In this way some have been exempt, from their cleanly modes of living and abundance, as the affluent; some from their business or employment, as water-carriers, oil-men, tanners, &c.; some from their age and previous state of health, as the old and valetudinarians, and sometimes infants; some from difference of constitution and habits as the natives of other climates, even the natives of other parts of the same country; and some from peculiar constitution or idiosyncrasy, discoverable by no outward sign, and explicable by no theory or laws of the animal œconomy hitherto known.

We have noticed, that the poor are generally the victims: consequently we may infer, the exciting causes act upon them with greater violence, because they have been more subjected to the remote; for the rich, even when exposed to what may be termed immediate causes, as contagion and a tainted atmosphere, are found to be proportionally secure.

Therefore, the common exemption of those who are voluntarily secluded from their fellow citizens in clean and airy habitations, and nursed in the lap of abundance, needs not excite our wonder, as though contagion never reached them; for many of their own rank, more humane and intrepid, who have met the destroyer in every avenue, have had an equal escape.

Volney tells us, that "at Cairo it is observed, the water-carriers, continually wet with the fresh water they carry in skins upon their backs, are never subject to the Plague."* This fact coincides with the observation in London.

George Baldwin, consul-general in Egypt, says, that among upwards of a million of inhabitants carried off by the Plague in Upper and Lower Egypt, during four years, he could not learn that a single oil-man, or dealer in oil, had suffered.†

Jackson, in his *Reflections on the Commerce of the Mediterranean*, likewise informs us, that in the kingdom of Tunis, there never was known an instance of any of the coolies or porters, who work in the oil-stores, being in the least affected by this disorder;

* Travels, ch. xvii. Webster, ii. 380. † Thomas's Practice, 223.

their bodies being always well smeared with oil, as well as their clothes being imbued with it.

We are told by à Fonseca, that all the tanners at Rome escaped the Plague; and Mindererus and Schenck make a similar observation.* Dr. Maclean refers to the exemption of tanners at Cairo.

Facts like these might lead to useful inquiries, respecting the efficacy of pure aqueous, or oily particles, diffused in the atmosphere, in correcting its pestilential qualities. How far do the waters of the Nile contribute to this salutary effect? The time when it begins to overspread the country is certainly the time when the Plague begins to cease.†

And are we to suppose the exemption of tanners at Bermondsey and Gutter-Lane was more owing to the bark and lime used in their business, than to the water from their tan-pits and the greasy effluvia from the skins?

I find it stated, that those who were exposed to drying heat, as bakers, cooks, and smiths, were noticed during the campaign in Egypt to be more particularly attacked with it.‡ This is some proof that *heat* alone does not arrest the disease in its progress, as some have imagined. Hence the common notion of extreme heat and extreme cold producing the same effects, is doubtful as regards contagion; which in some cases must be considered an hypothetical agent, whilst other causes may be rendering the body at the same time more or less liable to disease.

* Ploucquet Biblioth, vol. vi. p. 364.

† Webster, ii. 383.

‡ Thomas's Practice, and Maclean, vol. i. p. 264.

Julius Cæsar Kelli, cited by Dr. Maclean, affirms, that no tanner of leather has ever been known to be attacked with the plague; owing, as he thinks, to the drugs and oils which they use in their shops.*

If the druggists and apothecaries in Bucklersbury escaped in 1665, as we read in the City Remembrancer, this conclusion may be partly supported; but there can be no doubt that many of these fell a prey in other parts of London.

It is remarked by Pliny, that the aged are seldom attacked with the Plague; and Lord Bacon from his experience confirms the observation.†

It may be gathered from Sydenham, that this was the case in London. I find the same remark in numerous other writers.‡ As the old mostly suffer in the winter, the summer is their healthy season. “*Senectus maxime immunis erat,*” says Diemerbroeck, p. 7.

Valetudinarians, or those affected with chronic disorders, have also been found much less liable than the robust and healthy. The system being pre-occupied with a lingering morbid action, repels more readily this acute invader: and therefore it happens, that in time of Pestilence, as at the height, according to Diemerbroeck and others, whatever form of acute disease attacks any individual, that disease in a few hours turns to the Plague: and whatever chronic ailment is not so strongly fixed as to admit of being superseded by the Plague, as gout, rheumatism, &c.; if the patient

* Thomas's Practice, and Maclean, vol. i. p. 272.

† Bacon Nat. Hist. 913. ‡ Sydenham, pp. 81 & 485.

recovers, that ailment is removed ; and the constitution, having passed the ordeal, is invigorated.

Although the young and strong are more especially the victims, yet there is a limit; for it would appear from the history of many Plagues, that infants at the breast are but little liable; but, when their supplies are cut off, hundreds of this class perish.

In the plague at Manchester, infants escaped; and at Moscow, very few under two years old appeared to die from the disease. See Short and Mertens.

The Protomedico at Malta says, " Several infants drew milk from their mothers from the time they were affected with the Plague to the period of death, without the former taking the disease."*

Dr. Lafuentè says of the epidemic fever at Medina Sidonia in 1801, " It attacks every individual in the different houses, except the children at the breast.†

The fact, that many have experienced exemption from an epidemic pestilence, as the natives of other countries, in the infected place, whose constitutions and habits were to be supposed very different to the mass of the community afflicted, opens a wide field for speculation.

It seems not only to mark a country so afflicted as the peculiar seat and source of Plague, but establishes a difference between the latter and those contagious maladies, which, under almost every variety of season and climate, are observed to be easily propagated, and which acknowledge no greater predilection for the African negro than the Esquimaux Indian.

* Maclean, ii. 28. † Ib. i. 271.

Not that I consider this difference can be carried so far as some imagine; nor on the other hand, is the resemblance of Plague to small-pox so close in its characters, as our systematic writers have pretended. In both cases, the spirit of undue generalization has clouded the truth.

We have already seen, that the rich have an advantage over their poor neighbours (though born in the same country and city) in resisting the Plague; from their abundant supplies of wholesome food, and clean airy dwellings: but at the same time, errors with them are of dangerous consequence; and when attacked, they suffer more in proportion.

Now the advantages which the rich have for a long time previously possessed, in avoiding the causes which give a pre-disposition to the disease, in any place, are often possessed by foreigners in the same place; if, it must be premised, the climate is not generally prejudicial to them. For, it is well known, a removal to an unhealthy climate is at once sufficient to expose the stranger to disease; as of the English to the East or West Indies, to Walcheren, the river Senegal in Africa, &c. where they would suffer more than the natives; and in such cases, indigenous causes clearly produce the effect. But the facts we have on this head relating to the Plague evidently prove, that strangers are usually exempted, because their constitutions differ materially from those of a country visited with plague, where they may chance to be; and because they have not been equally exposed to all the remote pre-disposing causes. For, I take it for granted, that the causes acting to produce disease in pestilential seasons, are not quite so immediate in their

operation upon the human body as is generally supposed. But if the disease attacks strangers, they generally suffer less than the natives, contrary to what happens in the other case, and usually at different times.

In this exemption of foreigners, if we closely examine it, there is ground for concluding, that, whatever may be the causes, remote, local, or accessory, of Pestilence, they are of indigenous growth; and only concern that place, at that identical time *where* and *when* the human body has been brought to a crisis; in which it must either throw off entirely a long oppressing load, or sink under the weight. For as acute suffering cannot be long, there must be a time when the energies of the system will be aroused to maintain the equilibrium of health. And it seems to be a law of nature, that this cannot be protracted for a longer period than a few months. Therefore, the final stroke ought not to be viewed as the first and only wound that has been inflicted; though we are too ready to ascribe the whole effect, some to the sole operation of specific contagion; and some to an immediate corrupting poison in the air, without respect to any antecedent causes of disease. That these remarks justly apply to Plague in all its forms of invasion, I do not pretend to assert. Yet I know not upon what other principles we are to explain the fact related by Hodges, that individuals left London in 1665, and after continuing well a month or two, sickened and died of the Plague in the country; or that of Diemerbroeck, noticed by Mead, that many who were absent two or three months were attacked at the same time with their relations at home; and many similar facts by other authors.

Indeed, if no other fact were wanting to prove the locality of pestilential causes, in my opinion, this would indicate, that they belong especially to the inhabitants of a peculiar country or city, where the disease has multitudes as *pabulum* to feed on; that they are to all intents and purposes their own progeny, and only can have influence upon those who have been similarly circumstanced, whether near or at a distance. For in proportion to the range and extent of pestilential causes over many countries or cities, must be the general or circumscribed prevalence of disease; and in proportion to the difference of these, as to varieties of soil and climate, &c. must be the earlier or later or modified appearance of the evil when it comes.

Thus we hear of plague in cities, where the mass of population is greater and more condensed; and if there be any thing noxious in accumulated morbid effluvia, where the causes are more intense, before it attacks the country. And in the country we find it, *cæteris paribus*, sooner in the plains than in the mountains. But when the crisis is nearly over in the first, it is only beginning in the last; and the inhabitants of such places stand in the situation of strangers to each other; those of cities which have already experienced its ravages, being exempt from the disease, though visited and holding communication with the neighbouring villagers and mountaineers.* But this is only in case of a very general epidemic constitution; and it would perhaps be too much to say there would be an entire exemption. But the susceptibility is so diminished,

* Vide Russel, p. 25 & 26.

that the imported disease, like a tree transplanted out of its season, dwindles away and dies; neither the state of air nor of the soil being friendly to its existence.

Diemerbroeck cites Evagrius, Cardan and Utenhovius, who relate facts of this kind, which have been so often copied, that I quote them with reluctance.

In a Plague at Basle, only Swiss; no Italians, nor French, nor Germans, were affected. And at Hafni in Denmark, during a dreadful pestilence, all strangers, as English, Dutch, and Germans escaped; notwithstanding they lived promiscuously amongst the infected in infected houses.*

“It was very remarkable,” says the author of Dr. Mead’s discourse explained, “that there was not a British subject in Dantzic, received any hurt, while thousands of the natives fell on the right hand and ten thousands on their left.†”

When the British army was in Egypt, we are informed by Sir Robert Wilson, the natives in many of the villages had the Plague, but did not communicate it in a single instance to the soldiers, though the latter did not object to hold intercourse with the former, having even plague-sores upon them, in the markets.‡ And again, we are informed of a fact somewhat the reverse of this by Assalini: for “when the French army that marched towards Acre, having been subjected in its route to great privations and inclemencies of the weather, was attacked by the disease; the Egyptians and Syrians were not infected by the French, with

* Diemerb.

† Ib. p. 33.

‡ Sir R. W. on Egypt.

whom they held continual intercourse." "These had slept upon the damp soil of Ramla, after being often drenched with rain by day and by night;"—"paludal exhalations were conveyed into the camp, and their only subsistence at Jaffa was rice and bad bread."*

If I may be allowed to illustrate the phenomena of Plague by those of the English sweating sickness, which was itself a grievous pestilence, I may remark, that when this disease first arose in 1485, it attacked none but Englishmen.

"Even by travelling into France or Flanders, the English did not escape; and what is stranger, the Scotch were free, and abroad the English only affected, and foreigners not affected in England."†

This is analogous to what Procopius, cited by Friend, relates of the calamitous plague of 543, which traversed nearly the whole earth. "No native of an infected town, though he was in a region distant from the infection, found any advantage in changing the climate: for such a one was sure to be singled out as a sacrifice to the distemper, which raged among his countrymen."‡

Similar facts to the last are related of the plague at Nimeguen in 1636; and if I am not mistaken, the cases mentioned by Dr. Hodges are of this description.§

Wilson says, that "in Egypt some of the villages were exempt from the plague, while the most neighbouring were desolated. This is so common, that the

* Assalini on the Plague. † Friend, *Hist. of Physic*, vol. ii. 533.

‡ *Ibid.*, vol. i. 153.

§ Diemer. *lib. i. c. iv.*

inhabitants particularise to Europeans those villages in their districts which, during the season, the plague has appeared in, yet do not themselves refuse to enter into them.”*

“Although infected persons,” says Dr. Russel, “came from the mountains to Antioch, Shogre, and Edlib, which had been visited the same time with Aleppo, and some of them died in the families where they lodged; yet the distemper, by such means was not propagated, as if divested of that contagious property in the plains, which it seemed to retain undiminished in the mountains.”†

Webster has collected many similar facts and illustrations from the yellow fever (vide vol. ii. sect. xvi.) Indeed I can do little more than advert to the principle, as the citations would be so numerous.

Dr. Emanuel Timone, in his general observations relating to the Plague at Constantinople, remarks, that strangers are in more danger than citizens; and Armenians of all other nations least exposed to it, because they eat little flesh, and live much on onions, garlick, and wine.‡ We must regret that he does not inform us what description of strangers, Jews, Christians, or foreign Turks, and whether domiciliated strangers or Franks. The latter we know are commonly exempt. A remark of Dr. Maclean in some measure clears up the difficulty. “One reason,” he observes, “among many others, which gives the Mahomedan a greater exemption from plague than the

* Sir R. Wilson. † Russel, book i. p. 26. ‡ Philosoph. Trans. and Short, vol. ii. 153.

other inhabitants of the Levant, is their ability to possess themselves of the most elevated and healthy situations in each town, as is the case in Smyrna and the suburbs of Constantinople.”* But if Timone denominates all those *strangers* who are not Mahomedans, Dr. Maclean’s explanation will make the remark of the former intelligible.

We are put in possession, by Dr. Maclean, of a few facts relating to what he conceives the scale of exemption of different sects, or descriptions of persons in the “Levant. He quotes Howard, who remarks, ‘that catholics are during Lent more liable to the plague than protestants; and that Europeans in general are less liable to it than Greeks, and particularly Jews.’†

The days of fasting among the catholics are upwards of 200 in the year: and some of their periods correspond with those of the ordinary Plague season.

Dr. Maclean concludes “the Mahommedans have a great advantage over every other population of the Levant, excepting the Protestants, who are very few in number: and they may be regarded as exempt from Plague in the first degree, because they have scarcely any fasts, and inhabit the most elevated and healthy situations. The Protestants may be placed next, because of their appropriate mode of living; and of Christians the British inhabitants are the most exempt,

* Maclean, i. 262.

† Dr. Mead says, “it is a constant observation in countries subject to the plague, as Turkey and Africa, that when the common inhabitants die in great numbers, foreigners *who live in plenty*, if they avoid communication with the infected, escape the danger.” Works Ven. Exhal. p. 107.

which he imputes to their living, at all times, in a manner calculated for a season of pestilence. While the Catholics, including Greeks and Armenians, are most subject to this malady, from their extravagant fastings. And the Jews, the next most liable, from their inhabiting the least salubrious quarters of cities, and from circumstances connected with their habits and manner of living." I must also notice that among the causes increasing the liability of the latter classes to the disease, Dr. Maclean lays considerable stress on the dread of contagion; and he infers the danger is lessened to the Turks in proportion to their exemption from such fears.*

It is a nice point to determine, putting humanity out of sight, whether a notion, which tends to separate individuals from each other, and therefore to lessen the concentration of febrile miasmata, be not more likely to lead to security than an indiscriminate confidence or fatalism which crowds them together; and I cannot but suspect, that if fear on the one side, and assurance on the other, exert any influence in predisposing to the disease, or exempting from its ravages, the disciples of Dr. Maclean would run by far the greatest risk.

As to that peculiarity of constitution called idiosyncrasy, possessed by some, which enables them to resist the causes of disease and death readily acting upon others, I have but little to remark.

In respect to such it will not aid the argument of the strict contagionist; and in regard to the multitudes

* Machin, vol. i. p. 267.

that escape, if an argument could be taken from such cases of exemption, it is very clear the same objection would apply, whether a general cause, as atmospheric impurity acted, or only a more circumscribed, as contagion. For if some fully exposed to the latter could resist a poison so virulent as to destroy life in the rapid and awful manner noticed during pestilence, it is not to be wondered at that many should be able to resist the noxious influence of a vitiated atmosphere.

CHAP. XIV.

*General Remarks on the preceding Facts, relative to
the cause of Pestilence.*

SECT. I.

OF THE SUPPOSED ORIGIN OF PESTILENCE, BY IMPORTED
CONTAGION, CONCURRING WITH A PECULIAR STATE OF
AIR.

AFTER a review of the facts connected with the last pestilence in London, and after a comparison of its incidents with those of other plagues in other parts, are we to consider all the facts so loose and uncertain that we cannot discover any general principles which may enable us either to ascertain the cause or to foretel a similar event?

If foreign and domestic circumstances concur to produce this calamity, are we entirely ignorant of the nature of that state of things which can alone enable us to receive, as well as of that which, independently of police regulations, can enable us to repel, the invader?

And are the common opinions about the importation of pestilential contagion so firmly established upon facts, and not upon rumour, that we must regard the point as settled, and conclude that the laws of quarantine have exempted us for more than one hundred and fifty years?

I cannot but feel a wish that I possessed leisure and ability to do justice to any of these important questions, which indeed are all intimately connected:

and I have no other desire than to take a true and impartial view of the case. But amidst such a multiplicity of considerations as the subject involves, amidst numerous interruptions and distractions of thought, and with a frequent impression of incompetence to the task, I can promise nothing more than a very imperfect outline.

Taking up the consideration of the preceding questions in the inverse order, I shall, in the first place, offer a few remarks on the supposed origin of the Plague in London, and consider the evidence for the rumour of its importation. It is worthy of notice what a difference of opinion exists upon this point: and would be more remarkable if the history of almost every plague did not inform us of the same circumstance. The most sagacious medical inquirers have entertained opposite sentiments upon the question: we cannot therefore wonder that common rumour should have had such sway. We all know the influence of fear, particularly when our dearest interests are concerned. And it is natural that uncommon events should be traced to something uncommon; that an overwhelming evil should send the busy fancy roaming for a cause; and that love of our country, like the love of ourselves, should prompt us to think favourably of our situation, and to lay the evils generated at home at our neighbour's door.

Thus do we find that the disease, called Plague, has no native seat, and is acknowledged by the inhabitant of no country. Egypt disowns it. Ethiopia has no such progeny. Syria is too genial for its production. Constantinople harbours it through neglect or sufferance; and Persia, Japan, India and China,

know it only by name! As to the North, how could the temperate climate of Britain generate a principle so terribly destructive? Must we therefore suppose, that, like some dark and malignant passion, it can only take root and spring up in the most barbarous climes? Hence, on the authority, and in the language of Dr. Mead, are we to look to Africa, "*and no where else,*" for the source of this dreadful malady?

Many things must be considered before we can adopt this conclusion. And I cannot but remark how decidedly Dr. Mead expresses himself, in contradictory terms, in the two editions of his book. In the first, Asia bears all the blame; in the second, Africa. Yet I do not find a single note by way of explanation. "The history of the most terrible of all Plagues," says he, "that of 1349 gives a manifest proof, from whence all Europe may trace the origin of these evils; viz. from Asia."* In the second, "Having shewn this disorder to take its rise *only* in Africa, we must seek for its cause in that country, *and no where else.*"†

As to the Plague of London, then, public rumour fixed its origin at that time upon imported merchandize from Holland. This is the account of Dr. Hodges, to which he gives implicit credit; and that report has been generally received ever since. Now in 1663 and 4, the Plague being in Holland, the importation of merchandize from that country was strictly prohibited by the British legislature. But, notwithstanding this prohibition, some bales of flax, or silk, or

* Mead's Short Discourse, p. 10.

† Works, p. 181.

cotton, for it is uncertain which, were said to be smuggled into London, and conveyed, not to the trading part of the city, but to the upper end of Drury-lane. The difficulty of smuggling large bales of goods, such as flax or cotton are known to be, at such a time, must have been considerable; and the poor in St. Giles's were not very likely to deal in a wholesale way in those articles, at so many risks of loss and danger. But it appears, by Dr. Hodges's expressions, that, in consequence of an inquiry instituted some time afterwards with difficulty, he came to this conclusion. And yet it is remarkable that the occurrence of a circumstance so pregnant with danger should not have been speedily known, and accurately traced. But that was not the case.

Hooke, who was in London many months after the supposed introduction of these goods, and while the pestilence was raging, after all his inquiry, could not ascertain the cause; nor the indefatigable Boyle, who wrote largely upon Plague, when he says, "whatever be its cause, the propagation and divers of the symptoms may probably enough be referred to the depravation of the air."

Dr. Kennedy, who wrote in 1721, says, "that Captain Floyd, who lived in 1665, very justly and reasonably affirms the Plague to have happened from the sick prisoners in our sea engagement with the Dutch, and that it first broke out in Clare-market; though, he says, the common report at that time was that of its being brought over by cotton from Holland."*

* Discourse on Pestilence, p. 16.

But the uncertainty as to the kind of goods imported is itself suspicious. Cotton was the vulgar rumour. Flax was the article impeached by the College of Physicians. I mention these things to shew the doubtfulness as to the real cause.

It is very certain that Holland frequently felt the scourge of Pestilence about the same time with England, generally a year sooner. So that the two countries would seem to have been rather partners together in suffering, than the cause of each other's calamity. To what cause this may be imputed it is difficult to say. The London Plague, of 1603, was said to have been imported from Ostend. The same year it raged fatally at Paris, so as to destroy 2000 persons weekly, in the month of August.

Webster says that in 1625 it raged in Denmark and Leyden, where 9000 perished;* and the year before in Amsterdam, if we may believe Dale Ingram. And we know that the Dutch Plague of 1635, 36 and 37, was very general at the time London was visited.

Sir John Pringle says, "Holland was, at that time, more liable to inundations and to stagnation of water than at present."†

But, we may observe, that there has never been any want of rumour, probable or improbable, as to the cause of Pestilence. Thus we are told, very gravely, by Richard Kephale, the author of a tract called *Medela Pestilentiaë*, published in 1665, which is written with some ability, that the five Plagues of 1603, 1609, 1625, 1630, 1636, began in the following manner:—

* Webster, vol. i. p. 275.

† Observ. part iii. ch. vii.

“ the first time, by a *surfeit* in Whitechapel; the second time, by *seamen*, about the same place; the third, by reason of *rotten mutton*, at Stepney; the fourth, with a *pack of carpets*, from Turkey; the fifth, with a *dog*, that come over from Amsterdam.”* Some of these rumours need only to be mentioned to excite a smile; particularly when we take into account the circumstances of some of those periods.

According to Echard, “ superstition, ever watchful and suspicious, found out that the distemper of 1625 began in Whitechapel, in the same house, on the same day of the month, and the same number died thereof as in the year 1603: but” he adds, “ she is as false as Fame.”†

L'Estrange takes notice that the Plagues of 1625 and 1636 broke out in Whitechapel, among the slaughter-houses, as remarked by Heberden.‡ I need scarcely refer back to the remarkable change of the malignant fever of 1624, which began in a very dry and parching summer, into the pestilence of 1625; and again, of the latter into the former, the following year, as remarked by Short, from Lotichius.

The coincidence of this fact with the change of fever into Plague, and again of Plague into fever, in 1665, must strike every one; and if there really was any rotten mutton at Stepney, it is a more remarkable coincidence still.

But as it would be unbecoming to make any assertion to the prejudice of an author like Dr. Hodges, who undoubtedly wrote under the influence of a regard

* Page 2. † Hist of Plagues, p. 267. ‡ Ib. 86.

to truth, so I shall let the matter rest for awhile, until I have examined how far the admissions of Dr. Hodges himself, concurring with Dr. Mead, go on the other side.

What Hodges records, as to the infected goods, does not appear to have come under his own observation. And we may well conceive the difficulty of the inquiry, when we consider that, by Sydenham's testimony, a malignant fever was commencing its ravages at the same time; and that epidemic pleurisies were frequent and fatal, which imprinted a character upon the Plague itself. It is remarkable that Sydenham, though he infers the necessity of some pestilential seminum or fomes being present, says not a word of any rumour respecting its importation.

Speaking of the injurious effects of unwholesome food, in reference to that of the poor, in 1664-5, Hodges says, "it is my opinion that such a way of living may raise the humours to a degree of putrefaction, as brings fevers very malignant, and causes epidemical diseases, but not a true Pestilence: *though it may excite symptoms like to those in a Pestilence.*"*

It is moreover a fundamental principle in the work of Dr. Mead, that a corrupt state of air is indispensable to the diffusion of a plague, and produces of itself the usual forerunners, viz. fevers of extraordinary malignity. Upon these two admissions I lay some weight.

I think it proper to state in this place, once for

* "Many *knowing persons*" even then ascribed the Plague to the bad meat; so little was known of the true cause.—See Quincy's Hodges, p. 59.

all, not only on the authority of Mead and Hodges, but that of many other respectable writers, that I consider no fact is better established in medicine than this, that epidemic malignant fevers are often generated *de novo* in this our native country; and likewise, that they are sometimes communicated by contagion. Therefore, whether unwholesome food, or any other cause depending on a vitiated air, leads to their production, I assume the fact as incontrovertible, because of the weight of evidence on its side; making proper allowance for the kind of testimony on which *medical facts* much rest.

If therefore unwholesome food and corrupt air were supposed to be capable of producing malignant or pestilential fevers analogous to Plague, and foreign pestilential contagion was really brought into the country, how much in this combined action of causes was owing to the operation of contagion, and how much to the other incidental or accessory causes, which aided the propagation and were avowedly indigenous?

If this question could be answered satisfactorily, we should attain a very important point in this difficult inquiry—an inquiry not merely of curiosity, but of serious public importance. For I have all along been deeply impressed with the weight of that remarkable concession of Dr. Mead just alluded to, and with the consideration annexed; that the only fact he gives us in proof of the existence of such a corrupt state of air, is the appearance of malignant epidemic fevers: whereas it is fair to presume, that many other effects must necessarily arise from a cause so general.

Whether the phrase, “a corrupt state of air,” be quite correct, I shall not pretend to say. I certainly

think the most decided advocate for a "home-bred plague" could not have made use of *stronger* expressions: and they are not so scientific as those of Sydenham and Russel, "a pestilential constitution of the air." But as they are merely used to denote an ultimate fact, they will serve our purpose equally well.

No scientific person of the present day could rationally conceive, that a general corruption of the atmosphere, or in other words, a species of putrefactive fermentation in its elementary principles, took place either then or at any other time. For the unusual health experienced by many, and the calmness and serenity of the air, refreshed as it was occasionally by moderate breezes, are opposed to this notion; and Hodges expressly denies it.

We cannot indeed but wonder, that after Dr. Mead had ascertained this fact, he should not have informed us of a single circumstance, besides the production of such fevers, by which we might be enabled to discover the existence of a state of air so unusual and unfriendly to human life.

A corrupt state of air, without immediate effects, in some way or other manifest to the senses, is as difficult to conceive as it is unphilosophical to admit: and whatever objection Dr. Mead might have had to occult causes, and the *τὸ θεῖον* of Hippocrates, the expression seems merely to have been changed, as to any further light, the discovery of a corrupt state of air affords; unless we were enabled to analyse its nature, or trace its phenomena, independently of its effects upon the human body. For it is a natural inquiry, what would be the consequence, in any case, of such a corrupt state of air, if the contagion of Plague were

not brought in aid of its devastation? What is its origin, how long does it last, and by what means does it decline? Is it at once general over a country, or does it exhibit a progressive movement from place to place? Does it never occur but when the accidental importation of contagious matter is ready to co-operate, at the time it is required; and if it does, in what manner do the malignant fevers, its progeny, rise and decline? What is the season and situation most friendly to their appearance? If it does not occur but when plague is present, do these malignant fevers continue throughout its course; are they subdued and put to flight by the foreign contagion, or their type only modified and changed by its presence?

I observe indeed, that Dr. Mead has devoted the second chapter of the first part of his treatise to the consideration "of the causes which spread the plague; wherein, he says, the contagion accompanying the disease, and the disposition of the air to promote that contagion ought equally to be considered." Therefore, he concludes, "the design of the chapter is, to make a proper balance between these two, and to set just limits to the effect of each."

Now, it is here we might naturally look for an answer to the question I have just propounded, and where we might expect the attention of future inquirers would be turned to the only circumstances it became the duty of every medical philosopher to know: namely, the manifest signs originating in his own country, upon the due preparation of which, an exotic scourge could only be propagated. But if there were no signs, and the corrupt state of air in no other way marked than by the production of malignant fevers; if it was so

obscure and elusive as to defy all research; we ought certainly to have been made acquainted with a general fact, though mortifying, yet so important to science.

But all that I find in this chapter, on this head, relates merely to the effect of the air, as an auxiliary in propagating the contagion; and how in one country *cold* and in another *heat* seems to arrest its progress. But the independent or separate effects of the “corrupted air” itself are not once alluded to; not even the prevalence of malignant fevers. For it is in another part of the treatise, as if the admission were wrung from an involuntary witness, and in a casual way, that this remarkable concession is made.

Now, it is singular how nearly the admissions of the two leading authorities I have just noticed bring us to the point at issue. If the causes alluded to, unwholesome food and a vitiated air, are without doubt capable of originating malignant fevers, in places where local circumstances favour their production—a case it is always necessary to suppose; and if malignant fevers so nearly approach the disease called plague as to be with difficulty distinguished, and at all times to have created innumerable doubts and dissensions among physicians; what more do we want, in order to decide the important question? Even for the sake of peace and harmony, and to promote a steady uniformity of action among the ministers of health, whenever such a public calamity may require their united labours, it *ought to be decided*: and I am fully persuaded, this important branch of medical science will never receive that complete illustration and improvement of which it is capable *until it is decided*.

For if we do not deny, nay fully believe, that suc

malignant fevers are often contagious, and cannot with truth be distinguished from Plague, by the comparative absence or weakness of their contagious property, it is in vain to make such a specific distinction hinge upon so obscure and hypothetical a difference. If moreover these malignant fevers exhibit at times the bubo and carbuncle—symptoms which are assumed to be only characteristic of the Plague—"for such eruptions," says Dr. Mead, I myself have sometimes seen in the fevers in London," why should science be burthened by laborious attempts to separate near affinities from each other? For as on the one hand nosological distinctions are valuable, which enable practitioners readily to discriminate diseases which require opposite modes of treatment, by some striking characteristic symptoms: So all distinctions which are not easily reducible to practice, and aim at a greater degree of perfection than the nature of things will justly bear, instead of guiding the inexperienced, lead the learned themselves into error, and tend to darken rather than to clear the path of knowledge.

I will now endeavour to bring into view the peculiar state of things that took place in 1665, which either manifested an independent agency, or upon the supposition of imported contagion, concurred with it as adventitious circumstances to produce the calamity. We shall thus see what solemn preparation was made at home for the reception of this unwelcome stranger; and how opportunely it came, like some foreign enemy who had secret understanding with a host of rebellious spirits, waiting anxiously his arrival, to plunge their native country in ruin. So that if there really was any thing in this combination of indigenous circumstances

conducive to the end ; and upon the doctrine of Mead we must believe so ; far from regarding it as a casualty, it would in this view appear like a concerted plan ; and that the contrivance of man was ingeniously displayed in aiding the conspiracy. Whatever may be said, however, of human motives leading to a combination of wicked means to an end ; certainly, in the arrangement of the unconscious elements, it is difficult to imagine so strange a contingency.

For the present, I put out of view the operations of an over-ruling Providence ; which, I have no doubt, directs all the natural elements, as if they were individually endowed with reason, as not necessary to my argument. My only wish is to exhibit the several facts, as being subordinate to natural causes, in as clear a light as possible. I hope, therefore, I am not wandering beyond my proper latitude in making this allusion.

It may perhaps with truth be said, that the following facts occurred independently of foreign contagion.

1. An increasing mortality for two years before.
2. An increase by common diseases alone of many thousand deaths over the whole Bill of 1664.
3. An intense and long continued frost, which has usually preceded all the great northern plagues.
4. A mortality among cattle the preceding autumn ; and excessive abundance of unwholesome food, that pre-disposed the poor to its invasion.
5. The usual forerunners, destructive epidemics occurring early in the spring, and raging mortally till the disease broke out, as small-pox, measles, pleu-

Small-pox, measles, Pleurisy. **P**

risies, quinsies, and pestilential fevers; and the very stamp of some of these diseases on the Plague itself.

6. The disappearance of all these epidemics, except fever, when the plague assumed the complete dominion.

7. Their unusual prevalence in a greater comparative degree in the parish and neighbourhood first visited with the Plague, than in any other part.

8. A proportional increase and decline of other diseases in other parishes, where the plague progressively spread and declined, particularly of the common and petechial fever.

9. The prevalence of a long, dry, southerly constitution of the air, which is known to favour its propagation in all countries; to say nothing of mildews, and the effect upon birds, as described by Baynard.

10. The re-appearance of those epidemics at the decline, which had ushered in the disease, particularly of the pestilential fever without bubo.

11. The entire change the following year in the course and character of the regular epidemics, that had prevailed for several years before.

12. The unusual health and alacrity of many valedudinarians, during the height of the pestilential season; as if one class of complaints had been banished the realm, when another made its appearance.

If we consider also, that the disease varied its own features and properties; that it manifested itself about the usual time of the year; that it broke out in a part of the city where every thing was prepared to cherish its growth; and that it ceased as if wearied with slaughter in London, but ravenous for prey in the country, and observed the same forms and ceremonies

elsewhere; we shall have a tolerably correct notion of real characters which we are called upon to ascribe to, what if I say, a supposititious exotic pestilential contagion!

If its presence was really indispensable, we must suppose that it had some secret sense where to plant itself; unless we give the smugglers more credit for penetration and skill in planning such a nefarious scheme, at the risk too of their lives, than I suspect they deserved. For it chose the very season, the very time of the year, the very part of the Metropolis, *where*, and *when*, and among *whom* it might spread its ravages, with a sort of instinctive appetite!

SECT. II.

OF PESTILENCE, CONSIDERED IN ITS PROGRESS FROM PLACE TO PLACE, WITH REFERENCE TO CONTAGION.

I now proceed to consider the facts, as well as what it is necessary to suppose on the principle of contagion, when the plague retired from London, and occupied other parts.

In 1666, as I have before noticed, all the principal towns and sea-ports in England were visited except Oxford. On the exemption of the latter, I shall have occasion soon to remark.

Now of the multitude of towns and villages throughout the kingdom in which it spread, it appears remarkable, that we have no record of its introduction by persons or fomites into any one except into Eyam, in Derbyshire, by goods from London, conveyed, it is said, to a tailor's family.

That we have no such record, is to me a convincing proof that the disease was as insidious in its approaches, in all these places, as it was in London, and as it has ever been in other places.

For however the air of London, from its magnitude and crowds, might have been generally tainted with the miasmata of a specific contagion, so as to produce infection without the medium of persons or fomites; we should suppose its first appearance in small towns and villages must have been signalized by some special occurrence. I say this of a specific foreign contagion, virulent and active as that of Plague has been usually represented. Of such a contagion, it would be the natural property to diffuse itself abroad by contact or otherwise, whilst any were uninfected; to end as it began, without varying its character; to lose none of its essentials in changing its abode; and if it lost them in the decline in one situation (being as it were gradually exhausted in a country unfavourable to its continuance) to impress with less power, whilst it was migrating with impaired energies to another.

Do the phenomena of the Plague's progression correspond to these properties?

The consideration of a few facts, whilst it informs us more particularly what is meant by a progressiveness in the pestilential principle, will enable us to perceive whether this be the case.

If contagion was brought from Holland in the latter end of 1664, it was at the time when its activity was nearly spent in that country, and when thousands exposed to it seemed proof against its power. How potent after it reached us, is almost a futile observation, except for a step in argument. If it was conveyed

from London to other parts, where we know it raged as it had done here, it was at the time returning multitudes hailed with joy their native city, and encountered the enemy with boldness, though many felt its weakened blows, and many thousand citizens still remained secure in their own houses, though variously exposed to danger.

I can hardly present the subject in a clearer point of view, than by comparing the opposite effects of contagion, as to its weakness and strength at the same time, in London and in the village of Eyam.

We are informed, the contagion was conveyed from London to the house of a tailor in this place, in the beginning of August 1666; and that from his house it spread itself with such fury as in that and the succeeding month to destroy more than two-thirds of the inhabitants—about 250 perishing out of a population of 330. Now we all know that the Pestilence had abated in London, so as to be almost extinguished as a mortal disease in the latter end of 1665; and if it continued the following year, that it was in a very mitigated form. But at Eyam, that very contagion, which had been so insignificant in a greater mass of population, raged with even greater violence than in the Metropolis the preceding year. I must also observe, that the two autumnal months were chosen for this inroad, precisely the same time which the contagion, or more properly the disease, selected to display itself in the other distant towns in England in 1666. So that, I am well persuaded, something is omitted in the statement necessary to explain the phenomenon; or something added, with regard to the cause of the disease in Eyam, beyond the truth.

If contagion was conveyed from Marseilles to the surrounding villages in Provence, it was at the time that afflicted city was beginning to shake off the ashes of its mourning, and the survivors were congratulating each other, more for their own deliverance, than lamenting for their departed friends.

In like manner, if it has been conveyed at any time from one country to another, as the Histories of Plague in Africa, Syria, and Europe constantly remind us, however exhausted in its last attacks in the former, it commences its first onset with all its original fury in the latter: unless, indeed, this event should occur, which is frequent, that cargoes of merchandize from cities almost depopulated, are imported into others without harm; in which case, a new supposition comes into play, that the contagious atoms have lost all power, or are at once destroyed by an uncongenial air.

Now these things being premised, the fact of progression comes more immediately into view, as distinct from the dissemination of pestilence by mere contagion.

Because, if the atmosphere be prepared at one time and not at another, or if it be prepared in succession in different places to lend its aid in spreading the disease, however we may choose to designate it, the fact must be admitted, though its causes be unknown.

Thus then we prove not only that a pestilential state of air is necessary, but that it is progressive in its rise in different places.

For, when Plague is prevailing in one town or country, and saturated goods or infected persons carry

it to another, it will not spread in the latter till a certain period, when the circumstances of the place indicate a change similar to that from which it was brought: and when at length it comes, it comes insidiously.

Now the histories of this disease contain many striking facts illustrative of this observation.

Indeed it has been generally matter of surprise, and is one of the leading facts upon which those who deny its contagion found their argument.

Thus it has often happened that Plague has been introduced to the heart of cities, as to outward observation, climate, site, and season and filth, in every way calculated to spread it abroad, but it has entirely ceased after destroying perhaps one or two victims: while, on the other hand, it has insinuated itself in a manner quite inexplicable, as at Moscow and Dantzic, where every caution had been exercised; and not until some degree of alarm has been excited, has a question even been raised as to the mode of its introduction.

It spares for a time, in order to attack with greater violence at some future period; and the cities first visited appear to be then as much secured as the more tardy victims fancied themselves at first.

But this observation has applied to individuals in the same season, as well as to cities in different years.

For, in every pestilential period, some faithful attendants, constant at the bed-side, and exposed for many months to pestiferous effluvia, have sickened and died at the decline, when they were considered proof against the contagion.

With regard to progression, then, we have this very singular fact, the importance of which, after what

has been said of the beginning, height and decline of a pestilential epidemic, and of the variety of its feature and character in these several stages, we are better prepared to understand—that when it passes from one part to another (whether conveyed as contagion, or transmitted by a certain state of the air, being immaterial to the fact) it begins in the new place as it began in the old, and whether care be taken or not, goes through its course with the same regularity, declining with every mark of exhausted contagion. And it seldom occupies a longer period than three years in any one particular country.

“*Sedem mutans et alio migrans, hand ideo mitescit, sed æquali furore hic sævit, sicut ibi?*”*

We come also to this conclusion, that a contagion so far exhausted in appearance as to be quite inactive, or at least to have lost all its power over the inhabitants of one place, is notwithstanding capable of exciting a disease in another, with all the formidable symptoms generally assumed at its rise; yet, according to Russel and others, with diminished contagious power: this property being weak in the beginning, in the inverse ratio of the violence of the distemper.

Hence, according to this hypothesis, the same contagion is innocent in one place, and pregnant with evils of many months' duration in another; is slow, rapid and feeble in its progress; has its growth, maturity and age, maintaining a constant revolution of spring-time and decay; and when it is ready to perish in a soil which has just encouraged its growth by pro-

* Chenot de Peste.

digious fecundity, transplanted abroad, multiplies its species in the same manner; and like the Phenix of old springs with renovated vigour from its ashes!

But however singular the contagion of Plague may appear, when viewed in this light, and however diminished in importance as a prime agent according to the notion of many, yet there is a difficulty in admitting the opinions or rather phraseology of others, who argue exclusively on the other side.

To say that the air infects, and that the Plague is in the air, is as though some particles possessed of extraordinary malignity *suddenly* attacked with the disorder. Whereas we often find, that in situations favourable to the accumulation and concentration of febrile contagious miasmata, persons will frequently remain exposed for many weeks until either a sufficient dose be received, or a sudden exciting cause, as anger, emotion, or great fatigue or watching, shall give them their due effect in developing the latent malady. Now this may take place, *sub dio*, in a gradual and progressive manner, as in a sick chamber.

But if something of the kind takes place in the same house, and the same family, where a pestilential or contagious atmosphere, it is probable, selects its victims in due succession, and operates for many weeks or months upon some before they yield to its influence; it is surely not less difficult to conceive that a similar cause, if not the same, may operate upon different streets or quarters in succession; and, lastly, upon different towns and provinces in a progressive manner.

But whether this fact of progressiveness from place to place: viz. of inability in the disease to spread at one time, and to diffuse itself rapidly at another, depends upon some general cause acting at one and the same time over many places, and varying its effects according to difference of situation in different places, as well as difference of constitution or predisposition in the same place; so as to fall upon one place sooner than another—upon one quarter sooner than another—upon one family sooner than another—or upon one individual sooner than another; is a question involved in much darkness. Or whether it depends upon the agency of a cause more local at the time, and more limited in its immediate range, depending more upon the soil than the upper regions, but having a tendency to slow progressive motion from place to place, by gradual continuous contamination, (I will not say, corruption, of the air, rather admixture) or by some other circumstances, is equally a matter of uncertainty. Perhaps some of the facts I am to mention may throw a little light upon this subject.

I am unwilling to conjecture any thing, but it is important to have ascertained not only that a change in the state of the air is necessary to explain the phenomena in question, but that this change, whatever it be, does not operate generally at the same time, any more than a hurricane or hail storm.

I acknowledge it is a received maxim that it is not consistent with true philosophy to suppose many causes, where one is held to be sufficient for the production of any given effect: and therefore it would be

unphilosophical to assign the occult influence of the atmosphere as the cause of epidemic pestilence, if contagion were fully adequate to explain the effect.

Now I trust I should be the last to build a series of reasonings upon any hypothetical principle, when one nigh at hand, and generally received, would solve the difficulty. But that contagion, from mutual intercourse, will not explain the phenomena, is to me perfectly obvious; unless we invest it with powers of a most astonishing and contradictory nature. Besides, contagion itself is a principle, for I cannot name it quality, as occult, if we try it by the test of any of our senses, as a vitiated state of the air.

Nay, I am well convinced, the common bias to explain them upon this principle, has led many to overlook the laws and neglect the concomitant circumstances of epidemic Plagues.

The original seat of Plague is as much a matter of doubt in the present day as it was 2000 years ago. And until it can be shewn that the country of its birth is afflicted in a manner different to those in which it makes only a hasty excursion, and then takes its departure, we must admit from the facts, for there are none to the contrary, that there is no part of the world where the disease, called Plague, is always raging in its violent forms—always epidemic and sweeping as a pestilence.

In places where fever with bubo is known to exist, and appears to be endemic; where, consequently, Plague may be observed all the year round, there are usually no formidable symptoms, no virulent activity in the contagion, no alarming mortality; although all are more or less predisposed, and the

climate favourable; unless a pestilential constitution of the air should exasperate its violence; and then its visitations are characterised by the phenomena discoverable in distant parts, to which I have more than once alluded.

Where then is the native seat of pestilence? If the atmosphere in every country where it is permitted to spread, must be brought to a state on the very verge of pestilential, before this foreign poison can find a medium to diffuse itself, there, I believe, it will always be found; because, however contagion may abound, unless a pestilential state of air be present, no pestilence will be produced. There is no material difference in the course and career of all epidemic Plagues. The symptoms and seasons of their beginning and ending vary a little in different climates. But the few facts I have collected clearly demonstrate that in all they have something in common; and that they are subject to certain laws, conformably to the remark of Pliny—"Morbis enim quasdam leges natura posuit."

So that whether an overwhelming despair, or slothful fatality, or the extreme of human filth and negligence, expose thousands in the path of this destroyer, its fury ceases, while thousands remain untouched: and, on the contrary, whether human prudence exerts its utmost caution, or the skill of the physician is employed in administering the most powerful aid of science, its desolation spreads.

SECT. III.

OF THE EXEMPTION OF OXFORD, AND THE FORMER STATE
OF LONDON AND OTHER PLACES AS TO DISEASE AND
FILTH.

Now these principles, which I am endeavouring to unfold, have an illustration in the state of the City of Oxford, during the Plague of London.

What was done in Oxford, as early as 1517, to remedy its unhealthiness, appears to have been done in London and the principal cities of England, since the time of the last Plague.

I quote the following words from Quincy :—

“ Dr. Plott observes, the reasons why Oxford is now much more healthful than formerly, to be the enlargement of the city, whereby the inhabitants, who are not proportionably increased, are not so close-crowded together ; and the care of the magistrates in keeping the streets clear from filth. For formerly,” he says, “ they used to kill all manner of cattle within the walls, and suffer their dung and offals to lie in the streets. Moreover, about those times, the Isis and Cherwell, through the carelessness of the townsmen, being filled with mud, and the common shores by such means stopped, did cause the ascent of malignant vapours whenever there happened to be a flood. But since that, by the care, and at the charge of Richard Fox, Bishop of Winchester, in the year 1517, those rivers were cleansed, and more trenches cut for the water’s free passage ; *the town has continued in a very healthful condition, and in a particular manner so free from pestilential diseases, that the sickness*

*in 1665, which raged in most parts of the kingdom, never visited any person there, although the terms were there kept, and the Court and both Houses of Parliament did there reside.”**

Without this explanation we might naturally wonder how Oxford escaped--the very place chosen by the King and Court to take refuge in, being as it were especially favoured. The fact is, I believe, that it was noted for its healthiness. “But it is evident,” says Dr. Adams, “that Oxford was considered as more troubled with Small Pox, in proportion to its security from other epidemics.” The learned author (Dr. Plott) concludes his answer to this accusation against his favourite spot in these words: ‘But admit the objection be made, and that Oxford is more subject to Small Pox† than any of the neighbouring cities, yet, if by so much the less we feel the rage of the Plague, I think the edge of the charge is sufficiently rebutted.’‡

So then, at a time when the air of the country was not in a much better state than in London,§ viz.

* Dr. Quincy, from Plott’s Hist. of Oxfordsh. chap. ii.

† Small Pox, indeed, seems to require for its propagation an air, if not more pure, yet conducing more to the inflammatory state, than do the different forms of continued fever. How often do we hear of Small Pox and Measles, and sometimes the vernal inflammatory species of Scarlatina, hovering about the northern high grounds near London, as Hampstead, Highgate and Islington, some weeks before they become epidemic in the City?

‡ Adams Epidemics, p. 59.

§ “When the air of any one of our towns,” says Mead,

in 1665 and 1666, and when close correspondence was maintained between Oxford and the metropolis, the air of Oxford was unfit to breed the contagion of Plague, or to favour its dissemination: but it was scourged with pestilence of another kind. Hence, during a sickly season, in proportion to its exemption from one disease it was more exposed to another.

The healthiness of Oxford, or rather its general exemption from Plague, being traced with probability to the comparative care and cleanliness observed there, we are now prepared to consider the effects of similar causes in London and other places.

The question has been often asked why the Plague has not appeared as an epidemic in London since the year 1665; and as often hastily answered by some, that the constant use of pit-coal, from its sulphurous quality, has proved an antidote; by others, that the steady operation of our quarantine laws has succeeded in preventing it.

I apprehend neither the former nor the latter reply will stand the test of examination; and that we must take a more comprehensive survey of the past and present circumstances of our towns and villages; and look more to other causes operating nearer home, than to any effect that can be produced either by coals from Newcastle, or by contagion from the Levant. For coals were in use long before; and no one can doubt that goods have been often landed in this country since,

“shall be so corrupted as to maintain and spread the pestilence in it, there will be little reason to believe that the air of the rest of the country is in a much better state.”—Mead's Works.

if not saturated with contagious effluvia, certainly deeply imbued with the air of infected cities. So that if any *seminium* from abroad could act as a leaven in gradually corrupting the air of our climate, it might as well be done, perhaps, by the pestilential air necessary to its diffusion, as by the contagion itself!

For I am not without some apprehension that, if a blanket were long exposed at a fit season, and folded up in the midst of one of our most extensive ague-marshes, it might communicate an intermittent to one predisposed, a considerable time after. Therefore if infectious substances were ever brought from one country to another, and a vitiated or corrupt or pestilential state of the air be really necessary in every place, it may be a question whether a quantity of this pestilential air, enveloped in substances like cotton, wool, silk, &c. may not have done as much mischief as a contagious virus. For if an impure atmosphere, by dilution, may be so corrected as to become innocent; and if what are termed fomites, by ventilation and thorough exposure, may lose their noxious qualities, there is almost as much reason for the one supposition as for the other, nay perhaps more for that I have suggested, if the smallest atom of a true contagious virus be sufficient to produce the full effect. This is all, however, merely conjecture; and is entitled to no more weight than a conjecture at best deserves, when thrown into the scale of argument on either side.

But the connexion of plague with filth and impure air and crowded ill-constructed cities, and with certain seasons and climates and states of the atmosphere, calculated to engender mischief, though not accurately

defined, has been so repeatedly observed in different countries, as to stand on a far more solid foundation.

We are indebted to Dr. Heberden for the pains he has taken to establish this connexion; though it is due to the compiler of an interesting work, called an *Historical Narrative of the Plague of London*, in the *City Remembrancer*, to notice, that he traced the same connexion very closely, as early as 1769, though not so scientifically. Dr. Bateman has followed Heberden in the same path, and has thrown additional light upon the subject. I say nothing of the many valuable and scientific works from North America upon the transatlantic plague.

For, as some doubt the affinity of the two diseases, it would not be suitable to blend discussions on the causes and phenomena of one with those of the other. I shall remark upon it hereafter. In the mean time, my own opinion on their affinity is very decided: in short, that they are only varieties of the same disease modified by climate. And I look upon it to be as improbable for the Levant plague to spread in America in its oriental characters, or the true yellow fever in Great Britain, as for the cinnamon and clove to supplant the pine on the mountains of Norway.

“Dr. Heberden”, says Bateman, “has collected the most ample and satisfactory evidence of the connexion of plague, and of the malignant contagious fever, which usually precedes and accompanies it (if indeed they be not modifications of one and the same disease,) with the filth of crowded, ill-constructed, large cities, in all ages and countries: it has always originated and maintained its head-quarters in the filthiest parts of those cities; as in St. Giles’s, in London, in 1665, and

in Whitechapel in 1625 and 1636; and in those cities of Europe which, from natural or political causes, have been backward in adopting the improvements of modern times: the picture, he adds, of former manners is not exhibited in more lively colours than that of former diseases. The plague visited Denmark in 1764; it raged at Moscow in 1771; and at Cracow still later. The last-mentioned town, Mr. Wraxall says, was not wholly paved till within the last two years; and nothing can be so execrable as the present paving. There is not a single lamp in the place. No precautions are used to clean the streets; which of course become infectious in summer and almost impassable in winter.”*

If we look at the state of London in the middle of the 17th century, and compare it with the present, we shall cease to wonder that it has become of late years far more healthy. The mortality in 1697 was 20,970; whereas in 1797, it was only 17,014.

But after the great frost of 1740, a considerable increase for many years was noticed. Even so late as the year 1746, the annual number of deaths was 28,157.†

We have the following facts, chiefly taken from Heberden and Bateman, cited from the Histories of London by Maitland and Noorthouck.

“The streets were narrow and crooked, and many of them unpaved; the houses were built of wood and lofty; they were dark, irregular, and ill-contrived, with each story hanging over the one below, so as almost to meet at top, and thereby preclude as much

* Diseases of London. † Annual Medical Register for 1808.

as possible all access to a purer air; they were besides furnished with enormous signs, which by hanging into the middle of the street, contributed not a little to prevent all ventilation below. The sewers at the same time were in a very neglected state, and the drains all ran above ground. Add to which, the Metropolis, which now enjoys such a plentiful supply of water laid into every house, had, till many years subsequent to the bringing in of the New River in 1613, been but scantily furnished with this first of luxuries.*”

The above facts relate to construction; and the habits of the people in no way counteracted by cleanliness their bad effects. For the accumulation of filth and moisture in the streets, especially the narrow ones, for a considerable period after the great fire of 1666, was aided by various circumstances; bad and ill-repaired pavements, obstruction to the free current of air, water from the spouts, the habit of throwing all the refuse victuals, &c. into the streets; of feeding animals, such as goats, hogs, and poultry in them.†

But before that time, the mud and filth were suffered to lie in heaps in the streets; the drains were choked; they were in the habit of laying in the streets dogs, cats, inwards of beasts, bones, horns, dregs of beer, &c.; and of throwing into the ditches and gulleys carrion, rubbish, dung, and every thing offensive.‡

In the interior of their dwellings, we have reason to suppose things were not much better. After the time of Erasmus, they might have been perhaps some-

* Heberden, p. 71.

† Bateman, Diseases of London.

‡ Heberden, p. 77.

what improved. But the description he gives is disgusting enough. And he plainly ascribes the sweating sickness, which was a species of Plague, "to the in-commodious form and bad exposition of their houses, the filthiness of the streets, and the sluttishness within doors." We must also take into account, that two or perhaps three individuals occupied the space of one in the present day. "The floors," says he, "are commonly of clay strewed with rushes, which are occasionally renewed; but underneath sometimes lies unmolested a twenty-year's-collection of beer, grease, fragments of fish, spittle, the excrements of dogs and cats, and every thing abominable."

A place so circumstanced is aptly compared by Dr. Bateman to an army in camp. "The diseases, he observes, by which London in common with all large towns, was almost constantly infested during and previous to the 17th century, were, the plague, malignant, intermittent and remittent fevers, and dysentery."

"Now these very diseases, according to the concurring testimony of all military physicians, are the regular endemics of camps, especially in the autumnal season, if they continue for any time stationary in damp or swampy ground. These diseases are obviously occasioned by the miasmata arising from the accumulating filth of an army in such a soil at such a season."

"And experience has amply proved, that by draining a small marsh, by removing a camp a few hundred yards, and by the obvious expedients for removing filth, those endemic diseases have been avoided."

Dr. Bateman observes further, that "after the

contemplation of such facts, not a doubt can remain of the existence of those causes, which the experience of physicians, in camps and hospitals, in ships and prisons, has proved to be adequate to the production of the diseases in question, and *even to render virulent and contagious, those febrile diseases which are naturally destitute of malignancy.*" And he concludes, "the gradual and happy amelioration of the health of the Metropolis, which has been synchronous with the changes of the circumstances above described (*and this not only here, but in every large town in Europe,*) amounts to a demonstration of the truth of the preceding observations." See the Annual Medical Register for 1808.

"It was not until the year 1762, that the light of a rational knowledge upon the subject of the public health, which had dawned from the time of the rebuilding of the city, shone forth among the inhabitants of Westminster, who then set the example of reform, with the sanction of parliament; and were followed by those of the city, in the adoption of similar measures in 1766.

Fleet ditch was then first covered in; the streets were paved with large square stones; the ranges of posts, which took up the space of a line of passengers on each side were removed; the signs, gates, and bars were taken down, and a free ventilation admitted; the sewers and drains were improved; openings were made in the incommodious parts of the streets; and cleanliness still further promoted by the more active employment of scavengers, the increased supply of water, &c. The construction of the houses too, which have been astonishingly multiplied since that period,

being calculated in every way for the promotion of internal ventilation and cleanliness, and the general attention at present paid to these circumstances in domestic economy, add to the causes of the great salubrity of the Metropolis during several years past.”*

How far in addition to all these, the causes assigned by Dr. James Sims, may have operated in the same way since 1665, I must leave, but they deserve to be mentioned; viz. “A greater use of fresh vegetable food, a less use of fish, an universal use of tea, and a greater attention to our poor in time of scarcity.”†

“But the benefit of these changes has not been confined to London; it has also produced in the country a spirit of improvement, which has never ceased to exert itself since the fire of 1666.”‡ Dr. Adams remarks, “that we cannot easily ascertain what was the condition of our villages a century and half ago. But from the general improvement of the country, we may conceive them to have been very different from what we now see. As to the villages in pestilential countries, we have proof enough, that they are the proper nidus of pestilence. Dr. Russel says, that in Syria and Cyprus, the villages are like the Kaisarias,§ within the city, which are inhabited by the lower class of people, in which the contagion spreads with great fury.”||

* Annual Med. Reg. for 1808, p. 336. † Memoirs of Med. Soc. vol. i. p. 453. ‡ Heberden, p. 77. § Dr. Russel explains the word Kaisaria, “by a number of mean houses, built round a large enclosed area.” || Adams on Epidemics, p. 55.

For an account of the manner in which Plague has raged in other countries, as well as the state of their cities, of the beneficial changes that have been introduced, and the corresponding absence of the disease, I must refer to the observations of Dr. Heberden. "At the time," says he, "it was so destructive in England, it raged with equal violence in other parts of Europe; and probably from the same cause. The histories of those ages are full of the physical and political miseries which prevailed. And in proportion as the nations of Europe have become civilized, and agriculture, with the arts of peace, has been cultivated, this disorder has gradually disappeared."*

Therefore the absence of Plague from London, for so long a period as one hundred and fifty years, is far from being a solitary fact.

In collecting the preceding facts and opinions, I have wished to show that every thing in this inquiry is not of an uncertain nature; but that there is a species of fact on which I trust solid conclusions may be built. And it gives me more satisfaction to follow the views of such writers as Heberden and Bateman, than if it had fallen to my lot first to have collected the valuable documents on this head, for which I am indebted to them. Because I am persuaded their opinions, founded upon such evidence, must have far more weight than I can have any reason to expect will attach to my own.

* Heberden, p. 84.

SECT. IV.

OF THE EVIDENCE FROM QUARANTINE ESTABLISHMENTS
AND LAZARETTOS.

After such a mass of evidence, and the concurring testimony of such writers, I am disposed to ask, though it may be a bold question in the present state of things, can it be necessary to seek to establish on more solid grounds this principle; that it is to ourselves we must look, and not to our neighbours, for any harm which may assail us from the contagion of Pestilence?

It must surely be manifest, that foreign contagion, now usually considered the substantial germ, without which the most fearful combination of indigenous causes, famine, filth, misery, corrupt food, vitiated air and sickly seasons, can never produce a pestilence, dwindles in national importance almost to a shadow in comparison. And it can scarcely be doubted that the attempt to defend ourselves by quarantine regulations, while such causes existed, would be like binding in chains a ferocious animal at a distance, when another ten-times more fierce was fondled at our doors, and suffered to roam about at pleasure.

If however these causes do not exist, and we have proved, by experience, that the familiarity of this domestic visitant has been so inconvenient, not to say injurious, that we have discarded him for many years, are we therefore to content ourselves with the notion that we shall be secure from the foreign intruder?

The conclusion by no means follows. How then does the case stand?

It would require powerful and convincing arguments to shew that foreign contagion was nothing more than a shadow, against which so elaborate and expensive a system of precautionary measures has been directed in all the most civilized countries in the world. But though this may not be accomplished, we may perhaps lay hold of a few principles that may instruct us less to fear a stranger with whom our habits and the economy of our cities are so entirely at variance.

Let us examine the evidence which may be derived from Lazarettos, as well as that from places where no such establishments are maintained.

In the first place I shall notice the testimony of some of the officers of Health at Lazarettos and Quarantine establishments, appointed expurgators of goods from infected cities. We should expect to hear something of the annual sacrifices made to the public good in this hazardous occupation, from men whose interest it would be to make known a fact that would clearly demonstrate the necessity of their duties, and the awful security thus obtained by the public.

To begin with our own country, it appears from the Custom-house return, that none of the expurgators of goods in Great Britain, at the quarantine establishments, have ever taken the Plague since their origin. I quote these words nearly verbatim from the Report of the Select Committee of the House of Commons, on the contagion of Plague, in 1819.

The testimony of the Protomedico or Superintendent of the Lazaretto, at Malta, in reply to the 28th query of Dr. Maclean, is very strong; viz.

“ That during the period of fifteen years, in

which he frequented the Lazaretto, no cargo arrived, the expurgation of which infected a single individual in the establishment: and Deputy-inspector Grieves informed Dr. Maclean, that during the Plague of 1813, none of the persons so employed were affected.”*

Professor Assalini affords us still more comprehensive evidence upon this point. He observes—

“ It has been often said, that in breaking open a letter, or in opening a bale of cotton, containing the germ of the Plague, men have been struck down and killed by the pestilential vapour. I have never been able to meet with a single eye-witness of this fact, notwithstanding the inquiries which I have made in the Lazarettos of Marseilles, of Toulon, of Genoa, Spezia, Leghorn, Malta, and in the Levant. All agree in repeating that they have heard of such an occurrence, but that they have never seen it happen. Among those whom I have interrogated about this fact, I may name Citizen Martin, Captain of the Lazaretto at Marseilles, who, for thirty years, has held that situation; this brave and respectable man told me, that during that time he had seen opened and emptied some millions of bales of cotton, silk, furs, feathers and other goods, coming from several places where the Plague raged, without having ever seen a single accident of the kind.”†

It may, however, be objected, that the precautions taken by European consuls at the ports of Syria, Egypt and Barbary, are usually so effectual as to

* Maclean, p. 2, 31 and 45.
on the Plague, p. 83.

† Assalini's Observations

prevent the exportation of suspected goods, and subsequent danger at the Lazarettos of Europe.

Dr. Russel asks for further proof before he fully admits the assertion of Sir James Porter, that "all sorts of merchandize, susceptible of infection, pass through the hands of our English factors at Aleppo, Smyrna, or the places from whence they are shipped; they are examined strictly by them or by their servants; and there is not upon record, nor has a single living witness ever related an instance of an English factor or servant's dying of the Plague, at any of the seaport towns, or in any other part of Syria or Asia Minor, and but one only in Constantinople, in almost a century; though the disease very frequently rages in that metropolis."*

This, it must be confessed, is very strong testimony in answer to the supposed objection. And it is not for me to impugn the veracity of Sir James Porter, nor do I wish to engage in controversy on the subject, but to collect the truth. I must, however, remark, that Dr. Russel contents himself with replying to this and other objections to the Quarantine laws, by the statement of an individual case, more liable, I conceive, to doubt, than any assertion he undertakes to refute. "In whatever way," says he, "goods receive *infection*, in Turkey, the experience of Marseilles shows they do receive it, and are capable of conveying it to a distance."† Now surely if there be any one fact more disputed, and I think justly so, than another,

* Russell, on the Plague, p. 339. † Ib. p. 467.

it is that of the rumoured importation of Plague into Marseilles.

If we consider *where* it broke out, if we consider the previous diseases in the city, the state of the famished poor, the entire want of evidence as to any communication between the Rue l'Escale and the suspected ships or Lazarettos—for three ships were suspected, and three porters were seized with fever in their business of expurgating the goods of the three respective cargoes—no very improbable circumstance during the burning heat of summer—if we take into account that Physicians upon the spot would not, at that time, admit the disease to be the Plague; and that Physicians, deputed by authority from a distance, to inquire into the case, would not admit it: we cannot possibly receive the report as an axiom to build upon. The probability can only be decided by a reference to the broader basis of comparison with the phenomena of other Plagues.

That a lax system of quarantine might have been adopted at Marseilles, as well as at other places, is very possible: and that sailors in an unhealthy season coming to an unhealthy port, might experience some of the effects, and be seized with contagious fever, is not at all improbable. But this would not prove the case; even if other strengthening arguments were wanting to the opposite opinion, which concludes the disease to have been indigenous. I would not therefore waste time in debating a question which, after the lapse of a century, cannot be decided.

But if quarantine has been practised abroad in the same defective manner its regulations have been attended to in England, and if pestilence can thus be

transported from place to place, I should be disposed to wonder that imported plagues were not even more frequent than they have been represented in the cities along the coast of the Mediterranean. By Dr. Faulkner's statement it appears, that no very strict attention was paid at Malta. "It is not to be denied," says Dr. Russel, "as matters stand at present, that without being so secure a defence as is commonly imagined, quarantine establishments are a certain heavy tax upon commerce; and the benefit they promise to the state is very precarious; the detriment to the merchant is real."* I quote these words from the great advocate and supporter of the system. He proceeds, "As far as I have been able to learn, the present mode of performing quarantine in Britain is extremely defective. The captains and mariners who have been in the Mediterranean, comparing it with the practice of foreign Lazarettos, consider it in a light little better than that of an oppressive empty form. The officers entrusted with the execution of such regulations as there are, too often act as if they entertained no better opinion of them; and between both, the public safety is abandoned to chance."† Such was the opinion of one who studied the subject with perhaps more attention than any other physician.

Now if this be all true, that expensive quarantine establishments have been maintained with multiplied inconveniencies and hardships; and that we are more indebted to "chance" than good management for our preservation; it is high time we should know whether

* Russel, p. 467. † Ibid. 475.

they be essential or not: whether they be not a mere form; and whether it would not be safer to dispense with them entirely, than to rely for security on burthensome regulations defectively administered, which oppress whilst they deceive. Experience, we are told, is the mother of wisdom; and the maxim will hold in politics as well as in medicine. Are we therefore in possession of such a body of facts as will enable the statesman to take a clear and impartial view of the case as it relates to this important question? When some medical observers are partial in their inquiries, and publish opinions and statements completely at variance with those of others, it is not to be wondered at, that prudent statesmen should adopt that view of the subject in their enactments, which may err on the side of caution rather than of improvident exposure to danger.

But still such enactments may be founded in error; and even when laws weak in principle are feebly administered, hardship and loss will occasionally accrue. Meanwhile a real object of moment, well designed, may be neglected: and thus a shadow be carelessly watched, while the substance is lost.

Now with regard to the second point, or the evidence from those parts where no quarantine establishments are maintained, I do not perceive that we can deduce an argument for their beneficial operation in others. For it so happens that in the former, the indigenous and accessory causes above noticed operate with powerful effect in perpetuating the evil. It is obvious, that systematic incredulity and a religion of fatalism will be equally regardless of domestic as of foreign sources of mischief. Therefore we have no reason to presume, that the city of the Mussulman

suffers more from its want of quarantine or lazarettos than from the filth in its streets. If we look at Cairo, the Kaisarias of Aleppo, or Constantinople with its stifled and often nearly-famished multitudes of poor; or consider the towns of Barbary as they are now situated; we shall find perhaps a worse state of things, with reference to bad arrangement, crowds, and filth, in climates also far more obnoxious, than existed in London in 1665, or even in the time of Erasmus.

With respect to early periods of the world, as of those comprehending the state of Egypt in the time of Herodotus, and that of Rome; as far as we know, there is little to favour the system. This writer assures us, that the Egyptians were next to the Lybians the most healthy people existing. He attributes their good constitution to the constant serenity of the air, and the unvarying uniformity of the seasons. "When the Plague," says Pappon, "afflicted the city of Rome 717 years before the christian era; and when it reappeared in the reigns of Numa and Tullus Hostilius, these were the happy days of Egypt, those of its greatest fertility, of its civilization, culture, and population."

"Two hundred and fifty years after, Egypt had lost none of these advantages. During the five first centuries, pestilence ravaged Italy more than twenty-five times. In the two last ages of the Republic to the end of the reign of Claudius (or 250 years,) it only appeared three times on that side of the Alps. These were the happy days of Italy, when agriculture and civilization had attained to great perfection."

"After the fourth century of the christian era, Europe was desolated with wars; and pestilence was

very frequent ; so that from the fifth to the middle of the seventh century, it occurred in the west ten times upon an average in every hundred years. Under the Mussulmans, Egypt relapsed into that state which has been productive of so many physical and moral evils to its inhabitants.”* I have introduced this quotation from Pappon by way of preface to the remark ; that if Rome had no similar regulations to those we at present possess relative to foreign Plagues ; and if contagion was easily propagated from place to place, that city could have been hardly ever free from pestilence. But, to prove how far something uncommon always attended that event, Livy scarcely ever takes notice of a Plague in Rome, without connecting it with a famine or a siege, or an unseasonable state of the weather.

We may next inquire if the establishments of Lazarettos have preserved Cadiz and other towns in the south of Europe. There can be no doubt that when pestilential fever has occurred in that city, it has generally been marked by peculiar characters that would appear to be endemic of the place, or at least of that part of Spain : and which are not varied from time to time by the casualty of a different contagion from Barbary and the Levant.

It is admitted that Malta had been long remarkably free before the visitation of 1813. And that island appears to have been exempt from many of the local causes of disease acting in other places. What other circumstances contributed to the pestilence of that year we are not very clearly informed, and per-

* Pappon de la Peste.

haps must remain in ignorance. It is very certain that pestilential diseases, both before and after that period, prevailed in many neighbouring and distant parts.

We may confine our views in speculating on these things, or we may enlarge them; from exploring the quality and dimensions of a bale of suspected merchandise, to a range of cities, a review of states, a comparison of kingdoms, or even to a survey of climates and elementary vicissitudes: and perhaps there may be use in all. For he that searches goods for contagion, may satisfy us of many things we could not otherwise know. And he that investigates the causes of pestilence, and the laws of its propagation, may instruct us in various points of knowledge conducive to the happiness of Man. We must allow, the prevention of contagion is not the removal of its cause.

But to return to the consideration of the case before us, that we may perceive the exact predicament in which we stand.

Supposing, therefore, the disease in question to be only propagated by contagion, yet if the phenomena of all past plagues may be considered as affording any rule for judging of the future, it seems to be demonstrated that we must have a certain state of air, if not a concurring apparatus of indigenious circumstances engendered and brought to perfection in our own country, acting upon the body previously, as well as at the time, before contagion can be so widely spread as to constitute a pestilence. It is also clear that when so diffused it attains a virulence not exceeded in any climate: and again, that it dies away like an annual or biennial plant, in this and every other country.

We are therefore to consider whether this state

of air may be discovered by any obvious signs, or be so insidious in its approaches, like contagion itself, that all the observations of the phenomena of former Plagues can afford no light to guide us in the anticipation and prevention of danger. If this were the case, Lord Bacon might have spared himself the trouble of recording his warning signs: and it would be to little purpose to consult the prophetic aphorisms of Hippocrates, and of many other enlightened physicians and philosophers, relative to the approach of Pestilence.

If we coincide with Dr. Russel, we shall conclude that "the pestilential constitution of the air seems to be known only from its effects; that neither its approach nor its retreat can be predicted; and that its nature remains wrapt up in mysterious darkness."* And again, in another place, he says, "the approach of the pestilential constitution is slow, silent and imperceptible; no human barrier can be opposed to it: but if it do not meet with latent seeds of contagion to animate or invigorate, it will pass on, perhaps harmlessly, to other regions.† "The prevention of an occurrence so destructive to mankind"—that is, the prevention of so extraordinary a coincidence as that of a pestilential state of the air, *in itself perfectly harmless* with the principle of contagion (sometimes harmless also), according to the theory of Dr. Russel, "is the grand object of quarantine."

Now, I confess, the idea of a pestilential constitution of the air being perfectly harmless without its

* Russel, on the Plague, p. 281. † *Ib.* p. 434.

coadjutor, contagion, is to me almost inconceivable: and of the two suppositions I lay infinitely more stress upon the injurious effects of the former than of the latter. For it may truly be said of such a state of the air—not that I suppose the cause altogether resides in the air, but to save the repeated qualification of expressions, I use the terms—that the only sign of its presence is the Plague itself, raging in a particular manner. So that when the one departs the other departs with it. Hence I conclude they are both identified as cause and effect: and either the Plague produces the pestilential constitution, or more truly the pestilential constitution produces the Plague!

I think it must appear from these observations how little the distinctions assumed by Dr. Mead and Dr. Russel, between the accessory and principal agencies of such a state of air, in the phenomenon of pestilence, will bear a strict examination. For upon the principle that a corrupt state of air or pestilential constitution is only an accessory, the terms seem to have been invented to explain an otherwise inexplicable difficulty; or if I may so speak to meet the difficulty half-way, with a determination at the same time of retaining fast hold of contagion, which they would make independent of the other, and yet requiring its assistance. And I argue, as though I admitted their principles, only to carry them to their full length.

I am inclined to think that if Dr. Russel had entered a little more into the inquiry respecting the causes, instead of tracing the Plague invariably to contagion, he would not have expressed himself in so unqualified a manner; and would hardly have insisted that the pestilential constitution was not only

imperceptible, but that no human barrier could be opposed to it. If so, it must be more formidable than contagion itself. On the contrary, it seems to me nearly demonstrated, from all that has been said, that the most effectual barrier which can be opposed to such a state of air, is the barrier of cleanliness in our towns and villages against filth and crowded habitations; the barrier of Christian charity towards our poor against famine and distress; the barrier of peace against the desolating evils of war; the barrier of industry against the vice of sloth. For in opposing these barriers, which have a moral influence on the mind, and a physical influence upon the body, instead of armed soldiers and Lazarettos, I should consider the most effectual stand would be made against all the exciting causes—perhaps the very causes that concur to produce this pestilential constitution itself.

Yet I am not ignorant that something more than these things must be taken into account. But contagion, I apprehend, can do us but little harm, if we guard well our cities and habitations from the sources of mischief in our own borders. Therefore, in contradistinction to Dr. Russel's opinion, I believe the prevention of an occurrence, so destructive as general pestilence, is to maintain the watch against our domestic more than against our foreign enemies; and that if a pestilential constitution can in reality be produced in any country, without the local causes before mentioned, it is much more likely to pass on harmlessly when such causes do not exist than when contagion is present without them. But perhaps the preceding remarks more properly apply to prevention, than to the power of checking a pestilential constitution when

it is established ; and that I have not candidly interpreted Dr. Russel's expressions. For we must not exclude from our argument some cause more general, common to many countries and kingdoms, which is next to be considered. I shall conclude this section by recapitulating briefly the evidence relating to the subject of Quarantine.

Now if we ascertain that in some countries, where quarantine is strictly enforced, pestilential diseases do, notwithstanding, find entrance ; that in others where Plague has raged before, under other circumstances, though carelessly administered, the disease has not made its appearance for more than a century and a half ; that in others where these regulations are entirely dispensed with, the disease exhibits itself only occasionally, and obviously in connexion with a peculiar state of indigenous circumstances, or extraordinary phenomena in the seasons, &c. ; that in others where importation has been presumed, the fact, on investigation, has been always so clouded with improbable conjectures, as to cause the most serious doubts of inquiring persons upon the spot ; that at most of these establishments no well authenticated instance of death, in the frequently laborious and supposed hazardous employment of expurgation, has taken place ; and that in every country where Plague has prevailed, circumstances of a particular nature, variously modified, have existed ; it should then appear that in connexion with other views of the subject, a very comprehensive body of facts is within reach for the impartial consideration of those whom quarantine may immediately concern.

SECT. V.

OF CONTAGION, AND A PESTILENTIAL CONSTITUTION OF
THE AIR, VIEWED IN CONTRAST.

After what has been said in the preceding section, we are prepared to expect that something more than filth and impurity must be necessary to produce a plague; because local causes like these have existed for many years without any such effect. For what is common to many countries in the course of a few months or years, must have a cause more general. It is probable, therefore, that this general cause, whatever it may be, has some powerful influence upon the local circumstances alluded to; to heighten perhaps the malignity of impure exhalations, as well as to predispose the human body to the invasion of disease by unseasonable vicissitudes, corrupt food, or absolute deficiency, &c.

By some a very ready solution is offered of this difficulty; viz. that contagion is that something, misnamed general cause, which can accomplish all that is desired, and will explain all the phenomena. It is urged, that it is unphilosophical to ascribe to occult influences of the air or unknown exhalations from the earth, an event which admits of so ready an explanation on the principle of contagion. Such an argument is plausible, but let us see to what the objection so urged is liable.

In the first place, the most decided advocates for the doctrine of contagion, Dr. Mead, Dr. Russel, and others, have found themselves compelled to resort to

the supposition of a pestilential constitution of the air, independent of contagion, to extricate themselves from difficulties otherwise insurmountable; which indeed must be obvious after what I have detailed. And in the next, the several admissions which flow from that assumed principle, amount nearly to a full surrender of their own cause; and to a virtual recognition of all their adversaries demands.

To bring the matter more clearly into view, I will here recapitulate these admissions, that we may see how they harmonize with the corresponding objection.

A pestilential constitution of the air, then, can produce malignant fevers; can add to these the quality of contagion; can add even the bubo and carbuncle; can give that predisposition of body which is necessary for the attack of plague; can vary the symptoms of this disorder in the course of a few months from the most severe and fatal to the most benignant; can assimilate in every country the character of the disease to the leading type of its endemics; can alter even its contagious powers so as to retard, accelerate, inflame, and totally extinguish; can diffuse the venom abroad, till the whole air of an extensive city shall be so thoroughly imbued as to reach the timid in his retirement, and make contact unnecessary; can infect at the same time the individuals of a family, though widely separated; and distinguish between the inhabitants of different countries, even of different towns, making some susceptible and others proof against it; can increase to a tenfold degree the mortality from other diseases bearing an affinity; can impart to such diseases even the character of this grand assailant; can bring a host of epidemics upon the place, can banish them during

the plague's dominion, and cause them again to appear; can cause the birds of prey even to take their departure; can change the whole series and order of the reigning epidemics; can fix the prevalence and duration of pestilence to stated seasons; can renew the course of all these operations in different places, leaving health to those who have happily escaped where it has been raging, and bringing death where it is to fall; can direct the destructive powers of the natural elements, as with one accord, upon the devoted spot to the very threshold of a Pestilence: but after all this immense preparation, we are to understand, that without an African contagion, it cannot produce a Plague!

And this foreign seminum must be brought like a torch into a magazine, on the day it is filled with combustibles, although empty for a century, when every thing is ripe for an explosion!

But when no pestilential constitution is present, how this contagion lately so formidable dwindles in its importance! By the same admission, we find its powers are then so much impaired, as to induce serious doubts whether it has any real existence. For, as I have endeavoured to show what mighty wonders the pestilential constitution can effect without it; so now I will endeavour to show how little mischief contagion is capable of effecting without its potent auxiliary.

Now the Plague as a sporadic disease excites but little apprehension. In general its characters are so mild, that no trace of its former ferocity is retained. It is certain, that many of the features which distinguish it as an epidemic, are seldom, or never, assumed at other times. Even its affinity in these opposite states, is called in question, because of the very remote re-

semblance; and many wonders are expressed, that so fierce a parent should leave behind so inoffensive an offspring. Some have gone so far as to doubt whether it be capable in this weakened state of producing infection: and it has been shrewdly suggested, that if this be possible, no emanation from the diseased body at a distance can vitiate the sound; and that actual touch is indispensable.

But the clothes worn by the diseased, as cotton, silk, and woollen, which above all things are supposed to be the best retainers of contagious matter, and the most sure conductors of the pestilential spark, are often worn by others with the most perfect impunity. It appears they may be applied to the skin, may be locked up in drawers, and transported to distant parts, but without the power of doing injury. Contagious miasmata so generated, must either be very powerless in their nature, or so readily volatilized, as to be dissipated with the first breath of air. But if at the decline of an epidemic plague, the most concentrated effluvia are found to be innoxious, *a fortiori*, we must conclude there will be little danger from morbid secretions so comparatively weak.

Such is the contagion of the disease called plague in the opposite states I have described. And if the picture be true, as I believe it is; for the facts are taken from the first authorities; it matters but little whether it agrees with the preconceived views of those who deny its existence, or of those who maintain that this contagion is a fierce and deadly venom, always prepared to do its work with unerring certainty. According to the notions of some, there is no middle path between these opinions: and it is necessary to suppose

either that all the destructive power must be in the air or all in the animal poison.

Hence we might be led to define the terms specific contagion, and to consider how far such an expression may be applicable to the pestilential virus.

It is the misfortune, rather perhaps the imperfection of science, that things are often bent to words; and definitions made to controul as it were natural appearances; so as to convert real distinctions into arbitrary similitudes. Hence in part originate the errors of too methodical a classification.

But if by a specific febrile contagion be meant an effluvium or matter, which always produces its like, which, under the generality of circumstances, affects all individuals of the human family except those who have *once* before been subjected to its influence, and assumes in all countries nearly the same peculiar characters; then I conceive the contagion of plague will not apply to such a definition: and whether any other more apt can be found, I think it fruitless to inquire.

But on the other hand, when we find the rise and propagation of plague are generally accompanied by certain states of society, we are as little warranted by the facts in saying it is all from the air, though we may admit that a peculiar condition of this ambient fluid may foster the propagation. Therefore, as from the premises, we must conclude there is a middle path, I know of no opinion which is more consistent with the facts and with reason than that which supposes the occasional production of Plague where no contagion existed; and believe we shall never be able to extend our knowledge of the subject till this opinion become general.

For to pursue contagion from place to place, for ever flying before us, and for ever eluding our research, without being able to fix its origin, except by a supposition perfectly gratuitous, to any spot but one on the whole earth, is certainly not like the act of reasonable men. It is a flight in the regions of fancy not of philosophy; and resembles the delusion of children, who when following an *ignis fatuus*, think they are guided steadily on their way, whilst they are proceeding further into error.

SECT. VI.

OF THE OPINIONS CONCERNING THE ORIGIN OF PESTILENTIAL CONTAGION; OF ITS ANALOGY WITH SOME OTHER FEBRILE CONTAGIONS; AND THE PROBABILITY OF ITS CAUSES BEING INDIGENOUS.

In reviewing the records of medical speculation, I cannot find any opinion resting on more hypothetical grounds than that of the origin of pestilential contagion in Africa exclusively.

The reasonings of Dr. Mead about putrefying locusts and poisonous exhalations from a thousand sources of corruption, carried by pestilential winds not unusual in those regions, as causes alone sufficient to engender this most malignant enemy to the human race, are certainly specious; because our conceptions turn with magnifying emotions to a country where the creation of nature's progeny in every formidable shape and kind, appears to have been carried to the very highest pitch of perfection. And the little that we know has only served to excite our most extravagant curiosity-

about its unexplored wonders. But however natural it might be for a warm imagination to take such a course; yet a treatise upon solemn and interesting truths, that come home to our houses and families, ought not to be a poetic description, as in some Arabian tale. Upon this point I conceive Dr. Mead has taken some undue liberties: and nothing can shew the peculiar bias of his mind more clearly than his attempt, contrary to the best authority we possess on that subject, to refer the origin of the Ephemera Britannica, or English sweating sickness, to the same country.

Before the time of Dr. Mead, no such opinion was generally entertained. But if there was plausibility in the conjecture, that the contagion of plague could only originate in Africa, what shall we think of that extraordinary hypothesis of Platerus and others, revived by some modern writers, which maintains that the seeds of all contagious maladies have existed *ab origine mundi*; and that to suppose the possibility of a new production, would be as unphilosophical as to believe in equivocal generation? In what manner these primordial semina have lain concealed, and whether our first parents after their transgression endured the penalty of carrying this motley tribe of corporeal infirmities and defædations at one and the same time in their persons, would be natural questions to put to the advocates of such an original speculation!

And though many may be very capable of an ingenious reply, yet surmise and demonstration are as opposite as ever. For there may be ten thousand opinions, but only one among them correct.

Upon such an hypothesis the causes of these va-

rious bodily Plagues, which have thus been transmitted from one generation to another, must be veiled in darkness; much labour would hence be saved; and an easy method of cutting short a natural inquiry has been devised by this bold conjecture. For it would be equally absurd to explore the combination of means capable of engendering contagion, as by physical causes, to trace the formation of a plant except from its seed.

If this doctrine were established, we might wonder at the limitation even temporary of certain *contagions* to certain nations; at their disappearance for centuries, and their appearance again in new characters; that for ages the Arabs should have had the exclusive privilege of small-pox, and the Americans of Syphilis; that leprosy and plague should have desolated Egypt and Palestine, and Scabies and Porrigio polluted the natives of the north; that new *contagions* should have sprung up amongst us, as the Sudor Anglicus and Nova Moraviæ Lues, never heard of before, nor at any time discovered since. We might wonder, as disease fell to the lot of Adam's progeny, why if all were transmitted as our natural inheritance, some should avowedly be incommunicable, while others were contagious.

But to adopt the opinion fully, it is needless to insist, that if the seeds of the latter may lie hidden in every individual, without making their appearance, until some outward cause may bring them into action, then they are *hereditary* in their nature. But this I suspect would prove too much for these reasoners. And though so partial a distribution of these physical evils, which our great progenitor is supposed to have

suffered for our sakes, has obviously taken place, we must conclude upon this principle, that outward situation has had nothing to do in their actual generation !

In comparison with this theory, if it may be dignified with the term, Dr. Mead's opinion was sober and rational, consistent with the varying forms of disease, from diversities of constitution and the contrarieties of climate, habit, and situation. Not but it is clear he went a step too far : for in fixing with singular precision the original seat of Plague, he assumed a negative position incapable of proof, that no possible degree of putrefaction or atmospherical taint can generate a pestilence in Britain. Therefore a still further enlargement of his views we may deem consistent with the daily evidence of sense and with undoubted testimony. Because experience is constantly reminding us how *contagions* may arise, and how they may be modified by locality ; how they may be produced, aggravated, mitigated, destroyed ; how the contagion of dysentery and malignant fever in a camp or jail may be occasioned and suppressed, without exciting the wonder of a new creation : as though the human body was not subjected to certain laws of morbid action, from deleterious causes, which have been for ages producing their steady effects ; and as though to favour this position would be to admit, that we were continually liable to monstrous and unheard-of varieties of disease. Upon the latter subject, I would make a few observations in some degree illustrative of the origin of febrile contagion.

It appears to be amply demonstrated, by repeated observation, that animal effluvia, condensed and stagnant in a confined air, from a number of persons

crowded in a small space, and surrounded by their own filth, even without the morbid action of a febrile affection, acquire a high degree of virulence, and become deleterious, if not to those accustomed to such an air (from the influence of habit) yet to others recently exposed to it.

But if this be the case, so that the very clothes of the former may convey a poison into the open air, what are we to conclude, when, to the circumstances above noticed, are superadded corrupt food, the influence of sickly seasons, and the morbid progeny of vitiated humours—animal effluvia secreted from the human body in a state of malignant febrile action? Is it credible, if the former position be allowed, that from such a combination of circumstances, miasmata, endowed with a most pestilential contagious power, will not be generated?

“The most pernicious *infection*, next the Plague,” says Lord Bacon, “is the *smell* of the jail where prisoners have been long and close and nastily kept;”—“which has some similitude with a man’s body, and consists of human flesh or sweat putrefied.”

Commonwealth of England. Nat. Hist. 914.

As in the former case, which I conceive to be parallel to the often-quoted seizure of three hundred persons at the Oxford Assizes, in 1577, (where we do not learn that a propagation of the disease took place in a purer air) it may be presumed that the mischief would soon cease; so in the latter, we have nothing but the evidence of facts to build upon. And these alone can inform us how a more malignant poison maintains its existence when transplanted to another soil; if a contagion so produced be obedient to the laws of other *contagions*; whether it loses its power

by frequent transmission or by lapse of time ; whether it selects the victims more nearly resembling those from whom it sprung or finds others more susceptible ; whether it changes its type by change of season ; whether it chooses the marsh or the sandy soil, the wooded or the bare, the city or the country, the air of the mountains or of the plains.

We know but little how the various kinds of contagion differ from each other, and in what various ways infection may take place ; but it is an undoubted truth that as there is in bad morals a tendency to taint our neighbour, so is there in almost all febrile diseases, where filth and vitiated customs and impure air prevail, a peculiar tendency to spread by a species of physical contamination. All the secretions and exhalations seem then to partake of a virulent activity which helps to propagate a similar disease to another, not yet perhaps ready to yield up his strength to the prevailing malady, till he receive a taint from his sick comrade. How else are we to explain the accounts of intermittent fever, of remittent and bilious fevers, of cholera, dysentery, &c. being considered by men of no mean authority at times positively contagious ?

Whether in such secretions and exhalations there be a contagion capable of producing its kind in one predisposed ; or whether it be specifically distinct from other *contagions* in more qualities than its less fixable nature, or whether the skin, or lungs, or stomach, receive the first morbid change, or lastly, a more direct impression be made upon the sensorium by the olfactory nerves ; it is not likely we shall be able readily to determine. The mode of infection may differ in different diseases. It may differ even in the

same: for it is probable the stomach would receive the variolous poison as well as the lungs and skin. But it is very certain that contagion, if it may be so called, produced and disseminated in the manner above noticed, has such a distinct relation to, and dependence upon a certain state of air, that separate if possible the sick, the mortality will diminish; disperse the sound, the progress will be retarded if not arrested; let the diseased even mix with their fellow-creatures at a small distance who are more favourably situated, the latter will scarcely suffer harm, while the former begin to recover from the very hour of their removal.

Now facts and observations like these are not adduced for visionary purposes; they are of practical and useful application.

Shall we therefore be such devoted contagionists that our specific virus must, under all circumstances, propagate its kind; or so confirmed in the opposite opinion, that we can presume there will be no danger in approaching a comrade's couch, as in case of the diseases just mentioned, and inhaling his breath and offensive effluvia, when we ourselves may be on the threshold of a similar disorder?

But as the former never was the case with the most active pestilential contagion—for even variola will be arrested when the Harmattan blows—the change of a few months sweeping it away from uninfected multitudes without change of place; so danger from the latter is, in my view, as fairly established; however we may differ about the mode of infection; or however some may pretend that the crowding of human beings together under such circumstances in

no way aggravates the malignity of the distemper or fosters its propagation.

What then becomes of a contagion so produced and so fleeting in its nature as to be almost at once extinguished—in the air and the garments and the person, destroyed, as though it never had existence?

Can we deny that dysentery, and camp and jail fever of malignant type, and bilious remittent and epidemic cholera in the East, what if I add the yellow fever, have often afforded illustrations of these principles? And will not these observations apply to the true pestilence of cities?

To say nothing about reasoning from analogy, let us reason from facts. Can any rationally object that the contagion of such diseases (if it be not too much to presume that it exists in all) is specifically different, not in quality merely, but in nature, mode of operation, and fixable properties, from the contagion of the disease called Plague; and therefore that the remarks cannot apply? Surely the phenomena of the Plague's cessation in every city are nearly the same as those above stated; and after the experience of so many ages, and continually recurring experience of later years in the East, we are, I think, warranted in concluding that if the contagion of the respective diseases above noticed be in its nature weak and volatile and easily spent, so is that of the Plague. Therefore an obvious conclusion must be drawn, that if we simply regard the phenomena of its decline, no argument for a specific difference in the contagion can be maintained; because it is destroyed in the air, in the garments, and the person, to all intents and purposes, as in the former diseases.

But the same analogy holds in other particulars as well as the decline: for if such diseases are not extinguished by a change of locality or season, they are modified in their appearance and character as is the Plague. Thus the latter disease will vary its form, and be contagious or not according to circumstances: if its spreading or incommunicability may be considered a reasonable indication of the existence or non-existence of contagion in the disease.

Sir James M'Gregor observes, "that when the Plague first broke out in the Indian army in Egypt, the cases sent from the crowded hospitals of the 61st and 88th regiments were, from the commencement, attended with the typhoid or low symptoms. Those which were sent from the Bengal battalion, when the army was encamped near the marsh of El-Hammed, were all of the intermittent and remittent type. The cases which occurred in the cold rainy months of December and January, had much of the inflammatory diathesis; and in the end of the season, at Cairo, Ghiza, Boulac, and on crossing the Isthmus of Suez, the disease wore the form of a mild continued fever."* Yet this writer does not doubt its contagious quality.

And, on the latter point, Sir Robert Wilson informs us, as I before remarked, that when the Plague was spreading among the natives in Egypt, the British soldiers, holding intimate communication with the diseased, were exempt: and Assalini assures us that when the French suffered from the same malady, in the same country, as noticed above in Chap. XIII, the

* Thomas's Practice, Art. Plague.

Egyptians and Syrians, though maintaining free intercourse with them, escaped. But again we are informed by an eminent Physician, who has distinguished himself as a champion in the cause of contagion, viz. Dr. Bancroft, that "the Plague began at Rosetta, about two months before the usual time, on the 13th of September, when he discovered it in two natives of the East Indies, attached to the Indian army; and it was propagated with some rapidity, for six or eight weeks, among persons who were either born or had just come from a climate much hotter than Egypt; *whilst the British troops, directly from England, did not receive, and probably could not have been made to take, the disease.*"* If British troops, on the native soil of pestilence, cannot be infected, are Englishmen likely to be infected on their own?

But these are only a few out of hundreds of facts tending to the same point.

Now if they are all well-ascertained, and seemingly opposite in their bearing, when referred to another rule—the common opinion about contagion—is it possible that a narrow view of one side or the other will enable us to discover truth; and is it not clear that upon some broader principle only can such contradictions be reconciled?

It is certain that, whether consistently with natural appearances or not, common opinion has fixed upon one accident of this disease—the incidental quality of contagion—as an essential characteristic invariable and constant; to which all the other phenomena of the

* Bancroft, p. 290. See Rees' Cyclop. Art. Plague.

disease must be subservient ; and which varieties of soil and season and constitution can in no wise alter. Nor is it perhaps wonderful that such a feeling should prevail. Because from that one quality, the power of self-propagation, even more than the occasional malignity of the disorder, have our fears been especially derived ; so as far to have exceeded the bounds of truth. For it is abundantly proved that this power only exerts itself under peculiar circumstances : and because these may be obscure or partially understood, its name carries terrors in every season and in every country, as if its arrows were always pointed with death and ready for destruction.

But this is not the case ; and if any thing were wanting to correct our fearful impressions, it would be the contemplation of what occurs in those parts of the world where human art interposes but a feeble barrier to its natural career ; where medical treatment has little of science to recommend it ; where every cause that can aggravate its fury is suffered to exist ; and where precautions are neither taken to prevent the present nor the future evil : but all submit themselves as with general consent to its uncontrouled dominion.

It is too well known, that in all the Turkish towns security is neither sought for by avoiding contact, nor the use of infected apparel : yet the plague is arrested, I have no doubt by natural means, in the manner I have described.

But to pursue the argument a little further : if the diseases in question, or their contagion, I do not care which expression, require a peculiar combination of local circumstances for their propagation out of which they are spent, so does the plague or its contagion,

by the admission of our first and leading medical authorities. And if the causes and circumstances attending the former be local and confined, so the combination of circumstances, if I may not be allowed to call them causes, attending the plague in its progress must be understood to be general. Hence, being of far more extensive operation, and more wide diffusion, they are much less capable of being comprehended and ascertained than any which can be expected to occur in the mere vicinity of a camp or jail.

For what is common to many nations, and occupies many years, must have causes or accessaries co-extensive with the effects. And therefore the propagation of pestilence from kingdom to kingdom ought, I apprehend, with as little reason to be traced to the sickness of a camp or a bale of goods, as the blight of a whole country to a single ear of wheat. Because if it be tolerably clear that without a pestilential constitution plague will not become epidemic, and the facts cannot be explained without the supposition, then in proportion to the extent of the one must be the diffusion of the other. Mead himself has, indeed, expressed the same idea in other words, relatively to England in 1665. And under this view, it may not be unreasonable to think that a general cause may exert an influence upon a minor, to modify the effect both in locality and constitution; an opinion which the citations just made from Sir J. M'Gregor and Dr. Bancroft respecting Egypt, would seem to strengthen.

Now if we can bring our minds to believe, without any great exercise of credulity, that the diseases to which I have so often alluded, camp and jail fever, dysentery, bilious-remittent, &c. can originate in the

situations described, what are the grounds of our scepticism as to the origin of the disease called Plague in our native country?

Does the doubt rest on the authority of Mead, or on its contagious power, or on the enormous magnitude of the evil, or on its absence for so long a period?

On each of these heads I may perhaps be allowed a few remarks.

If on the authority only of Mead, the foundation cannot be strong: for it has been shown, that the grounds of his own opinion were shifted from Asia to Africa in the course of a few months, without any sufficient reason for the change.

For, notwithstanding Thucydides observed, that the pestilence of Athens appeared to begin in Ethiopia; and that Pliny has mentioned, the Plague in his time usually travelled westward from the south; yet the former states his ignorance of the immediate cause, and the latter records the names of countries in which it never spread. A much older writer than either, and perhaps as correct an observer, gives a decided local origin to the Grecian Plague at the siege of Troy.

It is indeed credible, that the intense heat of a tropical climate, when other causes concur, as shores of mud and millions of dead locusts scattered in heaps, would extract from animal and vegetable putrefaction the highest degree of noxious exhalation.

It is true, that when the causes are sufficiently powerful to engender pestilence, it is rare that one kingdom suffers alone, but many are visited in succession, sometimes for a series of years, and the southern parts first or in the beginning of the series.

But though this be the general course, we find

frequent anomalies ; and these are common to all epidemics. A city or kingdom in the obvious line exposed to contagion in various ways, will be exempt this year, and the next perhaps suffer in its turn, whilst neighbouring parts escape. Of this I could adduce many illustrations from different authors. But as my wish is to condense, not to swell a volume, I must be content with general observations, in so far as I can dispense with the details necessary to establish any leading principle.

By what progressive law this is effected, what may be the principal and what the auxiliary, we are ignorant. As streets are passed over in a city and towns in a province, so are kingdoms in its progress. And as it is gradual in weeks and months in the same place, so it is gradual in different places in years. If contagion could effect it, as at first sight, the progress appears conformable to such a mode of propagation, and to require no other aid ; yet when we look at the degree of mutual intercourse kept up between different nations of the world, and between different places ; neither time, nor place, nor season, nor climate would be observed in its capricious movements ; nor would its termination in any correspond with fixed laws.

But if the contagious power of the disease be a reason for discarding it as a native of the country, and that no degree of putrefaction can rise to a height capable of producing it, I know not how we can so nicely balance the powers of reasoning, as to admit that fevers of extraordinary malignity can originate amongst us, possessing some of the identical characters of Plague, possessing even contagion ; and yet deny that

the latter can be any other than an alien, because the malignant fevers are not quite so contagious.

For if this be the rule of distinction, we might ask at what time of the progress of Plague does it apply? Surely not at the beginning, nor yet at the decline: seeing contagion is so tardy in the one and feeble in the other, that the nature of the disease is called in question, because of the numbers that escape; and its contagion treated with contempt, because it no longer continues to act.

A contagion that is capable of being extinguished so completely as that of Plague in Britain, bespeaks a country unquestionably hostile to its existence (now at least, whatever it might have been a century or two ago;) and the inference is not remote, that it should be hostile to its production also. But if the subject be weighed a little more, we shall find on the opposite side, that when it has prevailed in England, no climate in the world the most congenial to its birth, has fostered its propagation with more flattering tokens of near affinity. And in Egypt, and Syria, and Asia minor, in all the islands of the Mediterranean, and in the south of Europe, its temporary extinction is no less decided than in Britain. Therefore, from these views of the contagion, we cannot infer any thing decisive against its domestic origin.

As to the magnitude of the evil, it is not unnatural to view it as we do other physical events of a tremendous nature, from which our country is happily free. The earthquake and tornado, and simoom of the desert, are scarcely known to us but by description. Therefore, what can be more reasonable than to look for the cause of Pestilence, our most awful visitation,

to those parts of the world where the elements are displaying their grand and terrific energies ?

This is certainly a bias to which our minds must be prone ; and however little it may have of philosophy, it has much of natural feeling, which the former cannot easily dispel.

But in part to remove it, as far as a single fact can go, I venture to assume the indigenous origin of the sweating sickness, in direct contradiction, I admit, to the authority of Mead. I have, however, the testimony of Dr. Friend on my side ; who tells us expressly, that “ originally it was a native of our own island.”*

Lord Bacon does not doubt its domestic origin ; nor Dr. Caius or Keyes, who has given us the most particular account of it extant. That it was contagious, and attended with many peculiar circumstances, we are informed from the same source.

As to the report of its first being observed in the army of the Duke of Richmond in Wales, if we may fully credit it, I should not be disposed to wonder at the circumstance. For, what victims more favorable to its attack could be conceived than dispirited soldiers, many of them raw recruits raised suddenly in Wales, many weakened by a previous voyage, and all harrassed by fatiguing marches and night-watching, perhaps also poorly fed, and subjected to all the elemental causes acting at that season ? At the same time, had it raged among them at the beginning as it did afterwards amongst others, their leader would have had but a feeble remnant to contend with Richard for

* History of Physic.

the crown on Bosworth-field. And it is almost futile to remark, that had such a distemper prevailed in the Duke's army before he embarked for England, its nature was such, that in the crowded transports, the greater part must have perished, and Henry been worse than imprudent to risk his fortunes with such a band.

But if a contagion so active, penetrating, and destructive, could by any combination of causes originate in England, the question is decided, as far as the magnitude of the evil is concerned: and it is in vain that we make our fears, magnified by distance and the wonders of a burning climate, the test of correct views on a question of natural history.

Dr. John Hancocke, rector of Lothbury, in the beginning of the last century, says, in reference to this subject, "I believe our sweating sickness in England, though called by some writers a mild and moderate Plague, yet was one of the most grievous Plagues that ever existed. Nothing could be more so than it, to seize perhaps five hundred in a day, and to kill, without mercy, in twenty-four hours."* Armstrong, on the same disease, observes,

"This rapid fury, not like other pests,
Pursued a gradual course, but in a day
Rush'd, as a storm, o'er half th' astonish'd isle,
And strew'd with sudden carcases the land."†

An argument against its nativity, because it has forsaken us for so long a period, is not maintained on

* Febrifug. Mag. p. 82.

† Art of Pres. Health, book iii.

much better grounds; although the *prima facie* view may be favourable to its foreign growth. It has been said that the strictness of our Health laws at home and abroad has tended to the exemption; and been urged with zeal, that in the course of one hundred and fifty years, all possible combinations of elemental causes favourable to its production must have repeatedly occurred—in short every cycle and revolution of atmospheric intemperature; therefore if such were the causes of pestilence in England, that it must have more frequently occurred since, and that its long absence proves the reverse.

Now, as far as the strictness of Health laws is concerned, it is well known that it was not till 1720, the year of the plague of Marseilles, or near sixty years from the last visitation, that these laws were revised. The mode of their execution had been previously so lax that they could not be depended on; therefore a period of half a century elapsed with an inefficient defence. And since that, if we are to believe Dr. Russel, we have been more indebted to chance than good management for our escape. About the beginning of the present century I believe they were amended. But no one doubts that many a bale of merchandize, both silk and cotton, from our regular intercourse with Turkey, must have been often introduced to this country, during this long interval, brought directly from infected cities; I will not say infected, but touched by infected hands, and packed in infected air.

From the evidence connected with quarantine establishments, therefore, I must freely own, I place

but little confidence in the efficacy of British quarantine in protecting us from foreign disease.

I have already entered more particularly into an examination of the changes in our domestic condition since the middle of the seventeenth century, following up the views of Dr. Heberden and Dr. Bateman, as much more likely to explain the circumstance. And it appears far more probable that if this country has been so long forsaken by the Plague as almost to have forgotten, or at least to be unwilling to own its natural offspring, it is because the parent has been disgusted with the circumstances under which that hateful birth was brought to light, has removed the filth from her doors in which it was matured, and has adopted a system of cleanliness fatal to its nourishment at home. But if ever this favoured country, now grown wise by experience, should relapse into former errors, and recur to her odious habits, as in past ages, it is not to be doubted that a mutual recognition will take place, and she will again be visited by her abandoned child; who has been wandering a fugitive among kindred associates, sometimes in the mud cots of Egypt, sometimes in the crowded tents of Barbary, and sometimes in the filthy kaisarias of Aleppo!

But London does not afford a solitary instance of exemption from Plague for a period nearly as long. Paris has not been visited since the year 1668; about the same time it was paved, the streets were widened, and the city began to be kept cleaner.* Holland has experienced an exemption corresponding with that of

* Heberden, p. 83.

our own country.* A century has elapsed since the Plague of Marseilles; and from the year 1675 to 1813 no Plague had visited the island of Malta.

And if we revert to the sweating sickness, it cannot but excite surprise that from its last visitation, in 1551, it has been quite unknown. And whether it arose in England or elsewhere, before the year 1485, neither Greek nor Arabian, Roman nor English author had left any record of such a disease. Therefore new combinations produced it, and new combinations put an end to it. Consequently no inference can be drawn from the past against the probability of other new combinations, and the recurrence of diseases that have long since disappeared: and hence it would be unfair to refer entirely to the laws of Quarantine an exemption which may reasonably be ascribed to other causes, some perhaps within our power, and some beyond our controul.

If the mildest form of scarlatina be a disease possessed of the same specific contagion as the putrid sore throat, which raged as a Plague for several years after the great frost, surely we cannot account for its rare appearance since in that malignant character, by any human means taken to prevent it. And if the malignant epidemic fever, of 1740 and, 41, which preceded the sore throat, was so general and so fatal in England, as to want only the bubo and carbuncle, in the words of Dr. Short, that it might be denominated a Plague; we have enough to satisfy us that verbal distinctions will avail nothing when tried by the touchstone of experience, and that a malignant contagion did then arise little short of Pestilence.

* Holland has no system of quarantine. See Dr. Curry's Evid. in Report, p. 64.

CHAP. XV.

Of the Principles on which the Propagation of Pestilence from one Country to another seems to depend, and of the Prognostic Signs of its Invasion.

SECT. I.

OF THE SUPPOSED CO-OPERATION OF A PESTILENTIAL CONSTITUTION OF THE AIR, PREDISPOSITION OF BODY, AND CONTAGION, OR ITS EXCITING CAUSES.

HAVING now considered the chief objections that are usually made to the generation of pestilential fever in England, and having endeavoured to show that they are liable to much doubt, far less capable of proof, it remains for me to inquire upon what principles the natives of one country have to dread the pestilential fevers of another?

It has been pretty clearly shewn that the natives, even of the same country, are only liable, under certain circumstances, as of local situation, of bodily habit, predisposition, &c. to contamination by the same disease, or, if I may so express myself, to be morbidly affected by the exciting causes. It is fair, therefore, to argue a fortiori that the inhabitants of another country would resist it with still more success.

If to concoct a pestilence, a combination of causes, what if I say national and particular, must co-operate, it follows without any strained inference that a similar combination of general and particular causes must also

take place in any other country, neighbouring or distant, which may have reason to dread the invasion. I grant that if the premises be not admitted, which premises include an epidemic pestilential constitution, and a state of bodily predisposition, (which, consistently with the preceding facts and observations, I do not see it reasonable to deny,) the conclusion must be abandoned.

I can acknowledge, I have great difficulty in supposing it possible that at the same time, in two different countries, the circumstances of one should be so completely assimilated to those of another as to cause a contagious intercourse freely to take place. For if in the same country, weeks, nay, months must elapse before insusceptibilities can be overcome, and the necessary predisposition in cities, towns, streets, families and individuals induced, the probabilities against such an assimilation can scarcely be estimated, when we compare the widely different constitutions of strangers in another, who are not subjected to the same outward causes. And if it were possible even that two neighbouring kingdoms should, at the same time, be subjected to these causes, which if we regard the histories of epidemic Plagues, has seldom happened in any period of the world, the probabilities would not be much lessened.

Now, however fanciful all this may seem, and however hypothetical to assume a state of things, for the existence of which we have no other vouchers than certain effects or signs, because indeed the causes are invisible, I am well persuaded the phenomena of the Plague's progress, in cities, countries and kingdoms, correspond strictly with this view.

It is not, indeed, desirable to build theories upon hypothetical principles, though at the same time such theories may be capable of explaining facts. But I have neither invented susceptibility or predisposition, nor pestilential constitution of the air; building upon the admissions of others rather than on my own notions; and therefore think myself warranted in assuming certain conditions, both of the human body and the atmosphere, recognised by the most eminent medical philosophers; to which, as principles or ultimate facts, the above terms have been applied.

I therefore reason thus, that if a predisposition must be gradually if not slowly acquired (in what manner I pretend not to say), and if a pestilential constitution of the air be also gradual or progressive in its movements from place to place (by what causes I am not bound to explain); we have the two circumstances in view, perhaps one depending on the other, by a due regulation or balance of which as to time pestilence will ensue—making contagion or its causes auxiliaries as may be; for the conditions above stated are assumed by its warmest advocates: therefore I would not offend any prejudices, by excluding it from my case.

When therefore all these states coincide, predisposition, pestilential constitution and the exciting causes, Plague surely follows. But as soon as the connexion is dissolved, by the defection of any one, its progress ceases.* But the simplest view of the

* Infection (or epidemic Plague)," says Sanctorius, "can last only so long as the remote or immediate causes subsist; for if any of them fail, the malignity stops,"

case will serve to shew how difficult it must be at one and the same time to transport these various and essential conditions from one country to another.—Or if *transport* be incorrect, when applied to principles or qualities of the air and body, which are not in their nature transferable by any known human means—to bring all things to bear in concert with contagion to produce that effect, viz. a general Plague.

No one can pretend that the mere presence of contagion can command the attendance either of predisposition of body or pestilential constitution of the air to give it force: nor can either of the latter conditions call to its aid the former principle from a distant country; nor yet does it clearly follow that the actual existence of a pestilential constitution in any country will produce a synchronous predisposition as a matter of course; because it is proved that the latter is often slowly and gradually acquired, with what subservience to the former it is difficult to say, even in the same house and family susceptibilities varying, varying in rich and poor, and exceedingly varying at the same time in towns and in the country. But, as even one of the latter states cannot command the presence of the other, their united successful appeal for contagion, as a coadjutor, must be still more extraordinary; and therefore the difficulty I am aiming to demonstrate, the greater, of a combined and mutual co-operation of all.

If we consider, in addition, that time and place must be exactly adjusted, in which all these different states must coincide, we shall be able to form a tolerable idea of what is requisite for a true epidemic pestilence in any country.

It may, notwithstanding, be a question how far predisposition and contagion may be resolvable wholly into the general principle, a pestilential constitution of the air; at least as including in its progressive operation the former, and immediately tending to the production of the latter. To this notion I am decidedly favourable. But in a case of doubt I have been induced to consider the relation of all; and rather to conjoin the three as co-operating together, than to take upon myself to exclude any one condition. Yet I see clearly that there is not that simplicity in the combination which we often discover in physical agency; and should be more inclined to refer the whole to one general cause, than to a strange and unnatural coalition of independent principles.

It will readily occur to any one who views the subject carefully, that these remarks do not apply to strangers in a foreign land, subjected to morbid causes, often in a tenfold degree, compared with the native inhabitants; such as the diseases properly endemics to which Europeans are liable in hot or unwholesome climates.

It cannot fail also to strike, that the contagion of small-pox, and perhaps that of measles, do not seem quite obedient to the law I have laid down; though predisposition and mostly a fit state of air are necessary even to the diffusion of each. But in many respects these diseases differ from Plague; though there are points of resemblance, I believe, greater than what are commonly supposed.

Now I am not conscious, that, in stating the case as I have done, I have overstepped the bounds of truth, or violated the rules of a rational speculation, by ascribing to these several conditions more than their

due importance; and admitting principles in my argument that many might be disposed to reject.

For, upon a candid review of the phenomena in question, it appears to me we have as good ground, philosophically, for admitting the peculiar states of the air and the human constitution, as for admitting the existence of contagion itself. But if this be the case, the general inference stands unshaken: and the difficulty, what if I say utter improbability, of balancing the agency of morbid causes to an exact time; so that one shall be as it were the occasion or signal, for conveying the rest from one country to another, or conjuring them up at pleasure, will be fully displayed.

Not that I would be understood to deny the possibility of such a casual conjunction taking place; I mean, the contingency of contagion from abroad, with ready predisposition and fit constitution of air at home. But if the difficulty upon principle, such principles as I have laid down, would be great; so should the fact or history of an imported contagion be rare and enveloped in darkness. And accordingly we find this to be the case: for suspicion, doubt, and the idlest of rumours hang upon the narrative of every such event that I have seen; and, consequently, all, however studiously laboured and plausibly set forth, afford any thing but satisfactory proof of such a mode of introduction.

Let any one examine impartially the proofs which are attempted to be set up of the introduction of pestilential contagion into London, Dantzic, Marseilles, Messina, Moscow, Malta, Noya, &c.; and he must be satisfied that a clear and convincing case is far from being made out. It is true, that some have favoured

us with statements and assertions almost excluding the possibility of doubt ; and yet in parts of their statements have communicated facts, as it were unawares, that have thrown a new light upon the subject : while the accounts given by other authors of the same events have cast discredit upon the former by new details, in either elucidating what before was dimly seen, or clouding what was studiously embellished beyond the truth.

If, as I have said before, it were not my object steadily to confine myself to the histories of European Plagues in this part of my inquiry, I might illustrate the preceding remark, by a reference to the controversies about the contagion of yellow fever, and its origin in the West India islands and America. The subject is deeply important, whether it regards the one species of pestilence or the other ; and the same laws, it would appear, are applicable to both. The same kind of speculation has consequently followed them in their origin and progress.

Now the histories of the principal European Plagues being generally perplexed and unsatisfactory, as to the details of their foreign origin ; and a knowledge of the principles which aid in spreading a pestilence sufficiently accounting for these perplexities ; are we to consider the principles only true, and the histories altogether false ? It is to be naturally expected, that more doubts would arise as to the validity of such principles, than as to the authenticity of statements which have been generally received and acted upon in most civilized states, by the adoption of measures deemed of vital importance to the public welfare. It

is easy, I confess, to lay down principles in the closet, and upon these principles to work up on paper a series of propositions, which, if the author might have credit, would overturn an established system with as much facility as visionary dreams may be dissipated in the mind. In this way the difficulty of importing Plague might be demonstrated; and perhaps the absurdity shown.

But he must know little of human nature and the prevalence of custom who could believe that his conclusions would have any serious and sudden effect, in altering a system contrived for the laudable purpose of national security: and any reasonable mind, though ardent in the investigation of truth, and almost convinced of the soundness of his principles, yet in weighing the immensity of the risk, would even start at his own notions if but a shadow of doubt remained.

But nevertheless, if principles be well founded, it is hardly to be doubted, that society will profit by their adoption. For to say nothing of the restraints upon commerce, and the injury to trade and individuals, it must be acknowledged that the hardship, confinement, disease, and sometimes death, to which thousands are subjected in various parts of the world, from the constant operation of quarantine laws, are a standing oppression, if these be not essential. And it is more easy to count the multitudes that suffer in a memorable plague, as at Marseilles and London, once in a hundred years, than to enumerate the individual hardships occurring perhaps every year, and diffused over a whole century from the above causes.

Yet the numbers in the latter account might fall

but little short of those on the other side. The sum total of human misery would perhaps exceed.

If we consider also the ramifications or effects of the same system, when pestilence is prevailing, in shutting up the diseased with the sound in the same houses, and surrounding the city or territory with armed men; thus confining them to a vitiated neighbourhood, when they might escape; we may be satisfied that if human lives are secured in one way, they are placed in extreme jeopardy in another.

It is however a question of no small importance on the other side: how many general plagues have been prevented by quarantine, which might have otherwise taken place?

I much doubt, in answer to this objection, whether, *cæteris paribus*, general plagues have been in proportion more frequent in countries where no such laws are in existence, than they were in some of those where they are rigidly enforced, before the salutary arts of cleanliness and comfort, to which I have so often alluded, were adopted. And in making the estimate, we must consider that the relative situation of the former from climate, &c. is far more favourable to the production and spread of Pestilence than of the latter.

In Aleppo, we know that contagion was frequently introduced both by persons and goods, that is, the diseased and their clothes, from the year 1740 to 1760, without any plague being produced; and from the year 1760 to the present time, a period of sixty years, no general pestilence has appeared there, notwithstanding the exposure of that city in various ways to the general and particular causes. The same may be said of other places in that part of the world; and

the same may be inferred of many places near home, where plague formerly raged, which for a long time have been happily free; more, it is conjectured, from the absence of a pestilential constitution, than the absence of contagion, notwithstanding expurgations and quarantine.

Though the question above proposed may be important, the answer cannot, however, be decisive either way. But if we look to countries favourably situated for the production and dissemination of Plague, where changes have been effected of a beneficial character, and where the disease has been often introduced without spreading; we may presume with the highest degree of probability on our side, that, as far as regards our own, the regulations of quarantine have not preserved England from a single pestilential visitation since the year of the last Plague; and that if we are to be preserved in future, the state of the interior of the citadel will be of far more consequence to our defence, than the outer bulwarks to which we are now mainly trusting for security.

When we calculate the multiplying power of contagion, and the probabilities of its universal diffusion by a wide extended commercial intercourse; and if we suppose that it may be treasured up for months and years and conveyed to distant parts, and in these may again diffuse itself, so as to constitute some thousand sources of mischief; we have, I think, greater reason to wonder at its forbearance, with all the care that could possibly be bestowed, than to deplore the so frequent visitations of Pestilence in the world. For if we review the three last centuries, and freely admit every case of imported contagion, doubtful as it may

be, we should immediately be led to conclude, that instead of eight or ten general plagues derived from such a source, upon the received notions of contagion, there must have been fifty times as many, had not some powerful antagonist principles, similar to what I have adduced, withstood the reception and dissemination of pestilential contagion.

Therefore, whether we build upon their comparative infrequency, or the progressive mode in which Plagues commence, spread and decline, or the unsatisfactory evidence of their origin, reference must still be had to these principles.

The matter then resolves itself into this question : whether, admitting the spontaneous origin of Plague in any country, the principles on which a pestilence is propagated are so accurately defined, and proved to belong so strictly to that country, that the common means of defence against foreign contagion may be dispensed with, and that we may trust for security to our observations at home against the signs of anticipated danger. It may truly be said that unless the principles laid down lead to some practical utility, so that we can determine when quarantine may be enforced and when relaxed, our labour will all be in vain, even though we reduce contagion to the subordinate station to which it seems properly to belong. Must we therefore come to the same conclusion with regard to these, as with regard to contagion ; that they can only be known by their effects ?

For, if we cannot be sure of the presence of contagion but by actual disease ; if we cannot tell in what particular change of the body predisposition to it consists ; if a pestilential state of the air can only be known

by moving its head-quarters from place to place, and carrying the disease along with it; we may have the enemy at our doors before we are aware; and unless the watch be continually maintained, pestilence may approach us insidiously, like a thief in the night; all its hidden powers may co-operate, as in darkness; and we may know nothing of danger till we feel the blow. Now, in this state of uncertainty, would any one deem it wise to relax in keeping off at least one of the offending causes; and that over which it is supposed we have most controul, viz. contagion? Again, would it be wise, in this state of doubt, to neglect the observation of all those concurrent circumstances that have been found, variously modified, we must own, to precede and accompany pestilential periods; which unquestionably arise at home, and therefore especially concern us; without which contagion certainly cannot spread; which perhaps tend to the production of contagion itself; and by the observation of which alone our real state and danger may be discovered?

I apprehend there is no one who would not decide in favour of the latter case, with all its difficulties, as far more important to the statesman, the physician, and the community, than the former.

Feeling myself not justified, from any thing I have seen or heard, in denying the existence of a contagious principle in Plague, I have all along argued as though it was unquestionable. I have, however, been compelled, by the evidence of facts, to disrobe it of many of the imaginary terrors with which it has been invested, and to present it powerless and naked to the view as in nature it often appears.

I can very clearly perceive that if the abrogation

of quarantine laws is at any time to be effected, it never will occur by the general recognition of the principle that pestilential contagion is a non-entity; and therefore it appears to me, those writers waste their labour who endeavour to promulgate opinions which are against the almost universal sentiment of the civilized world.

There is nothing in the history of Plague which should make the existence of contagion improbable, far less impossible; and they who are so eager in rejecting it, ought to be aware that they are advancing a negative position, which it will be out of their power to prove.

We must regret that in medical reasonings there is such a tendency to run into extremes, when we have daily proof that in determining physical axioms, as well as moral rules, a temperate medium is the safest.

There is no subject to which this remark more applies than to contagion: and one is as much offended at the absurd lengths to which its advocates would carry its power, as at the unwarrantable conclusions of those who deny it any. The former, by making it equal to the explanation of every difficult case have only shown its insufficiency; and the latter have taken occasion from this unwise exposure, to detract from that little influence to which it seems fairly entitled. If on some occasions it slumbers, then its activity must never be awakened; if on others it inflicts a wound, then its presence must always be dangerous. From these opposite views have arisen contentions, the opprobrium of medical science; and still contentions prevail, and still phenomena present themselves, which solicit the

candid observer to accommodate them to some more general principle than either side is willing to allow.

The production of a disease with contagion is no more a departure from the regular operations of nature than of a disease without it. There is no analogy whatever between the creation of a vitiating quality or humour, capable of extending itself in the animal or vegetable kingdom—and contagion is no more than this—and the spontaneous production of an insect without the ovum, or a plant without the seed. And in a philosophical point of view, it is not more wonderful that some kinds of contagion should prevail in one country and some in another ; than that particular vices should diversify and deform the human character. A probable explanation of each from incidental causes might perhaps readily be given. Nor ought it to excite more surprise that some diseases, the product of filth and uncleanness, should spread by intercourse, than that evil communications should corrupt good manners. But, to follow up the analogy, as there must be a state of mind to receive the moral taint, so must there be a state of body to receive the physical.



SECT. II.

FACTS RELATING TO THE INQUIRY HOW FAR THE ABSENCE
OR PRESENCE OF PLAGUE MAY BE PRESUMED TO DEPEND
ON CERTAIN STATES OF THE SOIL.

To reduce the multitude of facts which we possess on the subject of Plague to some system, should be one of the first objects of scientific inquiry. Yet when I consider how many eminent men have expressed doubts of the possibility of tracing such an event to any regular and manifest signs, I enter with reluctance upon the task. If all our past experience in the development of the causes which produce or give effect to a pestilential disease affords nothing on which we may confidently rely, so that we may guard ourselves by timely warning, it is of little consequence that we have found out a name for the law by which its course is regulated. The circumstances preceding and attending a pestilential constitution in different countries have been so various, and even in the same country at different times, that we seek in vain for that precise order, by the observation of which we are led from one or more events confidently to anticipate another.

As relates to the common Epidemics of this country, with our most intelligent meteorologists constantly on the watch, scarcely any physician can predict on scientific grounds, whether, on the approach of any season, small-pox or measles, or scarlatina or fevers, or peripneumonies or catarrhs, will be the prevailing diseases. But the recurrence of these is so frequent, that if there were any connexion between certain dis-

eases and particular changes or states of the weather, it would surely have been discovered before this time. Therefore, as so little is known of epidemics which are liable to our constant observation, what, it may be asked, can we know of Plague or a pestilential constitution?

We have happily had no experience in our native country, for more than one hundred and fifty years, of the circumstances which precede and accompany such a calamity; and therefore have no data for comparison between the causes that produce the common and those which produce the uncommon or formidable distempers. I must except the different periods of influenzas, and that of malignant fever and putrid sore throat, after the great frost in 1740. But with regard to Plague itself, we have had no experience since the time alluded to. We must therefore look to other parts for information on this point. Though I believe no information derived from abroad can exactly apply to the situation of a country circumstanced as Britain. So late as the year 1713, Dr. Mead was candid enough to admit the probability, that the *sweating fever* which then prevailed in some parts of England was nothing less than the Plague of Dantzic, changed by time and moderated by the peculiar state of our climate and habits.*

By comparison with many others, we can indeed pronounce with satisfaction, and nothing but a comparison with others can fully establish the truth, that we have got rid of many of the local causes which existed as nuisances before and at the time of our last

* See Mead's Works, p. 195.

plague; and that such nuisances are still found in countries visited since. Here therefore we possess a general fact of great practical importance.

“It is remarkable,” says Sir John Pringle, how much the Plague, pestilential fevers, putrid scurvies and dysenteries, have abated in Europe within this last century; a blessing which we can ascribe to no other second cause than to our improvement in every thing relating to cleanliness, and to the more general use of antiseptics.”*

But, not to dwell on the state of Europe in our investigation, let us enquire whether the East cannot supply us with some favoured spot where habits of cleanliness have drawn a kind of magic circle round its borders, and where plague has not intruded as in Britain.

Most writers on the Plague have remarked the exemption of Persia; and I find the following notice in the City Remembrancer to the purpose: “The Persians, though their country is every year surrounded by the Plague, seldom suffer any thing by it themselves; they are the most cleanly people in the world; many of them making it great part of their religion to remove filthiness and nuisances of every kind from all places about their cities and dwellings.”†

Boyle informs us on the authority of Alexander de Rhodes, who resided thirty years in China, that, although so vast and populous, that empire is rarely visited with Pestilence. A country with so many millions of inhabitants, subsisting chiefly on vegetables,

* Pringle's Obs. Part iii. Ch. vii. † Ubi Supra, p. 94.

cannot but be well cultivated. For, no fences are to be seen, and scarcely a tree on the plains, lest the husbandman should lose the smallest portion of his ground: therefore their filth must be too valuable to lie unemployed and corrupting the atmosphere at their doors.

Boyle states, that the Plague is rare in the East Indies; and quotes the words of Sir Philibert Vernatti, "*Pestis morbus est Indiarum incolis incognitus.*"* We know, however, that another form of Pestilence, the epidemic cholera, is very prevalent.

The exemption of Japan has been frequently spoken of—a country mountainous and fertile, with an industrious population. But Dr. Plott observes, that though no plague is ever heard of in Japan, yet the small-pox and fluxes are very frequent."† So that Japan on a large scale, as to the small-pox, may be considered in the same relation to other parts affected with the Plague, as Oxford to England in 1665. As relating to the small-pox, I am induced in this place to quote a passage to be found in Lind from Sinopæus; who says, "There are whole nations in Tartary who live altogether on milk and flesh. These people are never seized with the small-pox; but, on the other hand, are subject to violent scurvies, which at times sweep off as great numbers as the small-pox does of other nations." See Lind on Scurvy, p. 234. Hodges speaks of "the prone and intimate union of the Pestilence with Scurvy"—"not slight and precarious," says he, "but firm and perpetual."

* Boyle's Works, vol. iv. p. 281. † Plott, ch. ii. 24. and Phil. Trans.

It is stated by Boyle, on the authority of Leo Africanus, that the Plague spares some parts of Africa twenty or thirty years together; and, expressly, that in Numidia, it only occurs about once in a century. Purchas says, that in Negroland it is not known at all.* We know that in the empire of Morocco it has its irregular periods. The peculiarities of all these countries in Africa are not mentioned; so that we cannot explain to what the above facts may be owing.

Sir John Pringle has stated what both Pappon and Assalini confirm, "that Egypt was more healthful before it became a province of the Ottoman empire." And as he connects bad habits and filth with mahomedanism, he tells us that "in Sennar, where it is established, pestilential fevers are destructive; though they seldom visit the Abyssinians, who border on that kingdom, and live in a hotter climate, but are christians."†

Dr. Maclean cites Legh, who informs us, that "Essouan in Upper Egypt has the singular advantage of never being visited by the Plague; a privilege for which it is indebted to the mildness of its temperature and the prevalence of strong northerly winds."‡

Assalini says, that "in the ancient histories of Egypt, there is no mention made of the plague. The cities of Alexandria, Rosetta, and Damietta, as well as the whole surface of Lower Egypt, are so much changed, that formerly these places might have been the most healthy parts of Africa. The ruins of entire cities, destroyed and overwhelmed; the majestic re-

* Boyle, iv. 281. † Pringle's Obs. p. 326. ‡ See the Pamphleteer.

mains of ancient monuments, preserved in spite of the overthrowing action of time, which at this day are in part submerged and surrounded by water, are sufficient to prove the revolutions which this part of the globe has undergone."

"At this day, continues Assalini, the lakes, the marshes, and the filthiness which one finds in the cities of lower Egypt, are the principal causes of the frequent diseases to which they are subject, and which can never be eradicated until we have found means to purify the atmosphere of their environs. This important advantage may be obtained by draining off the waters of the lakes, and filling them up; by keeping the cities clean, paving them, and giving a free exit to the rain water, which, stagnating in different parts of these cities, becomes corrupted, and, conjoined with filths, infects the atmosphere: By similar operations, several cities and provinces in Europe, America, and the Indies, have been rendered healthy. I have no doubt that the salubrity which we at this day enjoy in France and Italy, is the result of the amelioration of agriculture and the perfection of the arts."*

Of the places which on account of situation are protected from this scourge, the citadel of Cairo is quoted as one instance. "Its inhabitants during the plague of 1791 were exempt from the disease, which laid waste the lower town; with which nevertheless they continued to hold constant intercourse."

Assalini adds, that when the city has been enveloped in a thick mist, he has found the air of the cita-

* Assalini, p. 72.

del elastic, pure, and light. He even says, that "it has been observed, the inhabitants of this fort and environs have always escaped from the plague."*

"Experience," says Lind, "fully confirms this truth, that in elevated and temperate situations, where the soil is dry, gravelly, and clear from wood, shrubs, or stagnating water, Europeans enjoy good health in the hottest climates during all seasons of the year. This asylum for health is to be met with in almost every quarter of the globe. In Sumatra, Fort Marlborough affords a retreat tolerably safe. The unhealthy town of Calcutta, in Bengal, has in its neighbourhood the healthy situations of Barasatte and Garatte."

Bombay has been rendered much more healthy than it was formerly, by a wall built to shut out the sea, which formed a salt marsh, and by an order that none of the natives should manure their cocoa-nut trees with putrid fish.†

Empedocles, the Sicilian philosopher, we are told by Diogenes Laertius, removed pestilential diseases from the Salenuntians, by conveying two streams of good water into the stagnating river round their city, which gave rise to them.‡

Lancisius informs us, that "in 1695, when the ditch of Adrian's tower, and the great sewer of the city Leontini were filled with filth; immediately on the blowing of the south wind began pestilential diseases. By order of the pope, the streets, vaults, ditches, and

* Assalini, p. 59.

† Lind on Hot Climates, p. 207.

‡ Diemerb. de Peste, and Diog. Laert. See Mead, 117.

all similar places, were thoroughly cleansed; and ten years after, no epidemic malignant disease had appeared.”*

“Lancisius ascribes the severe epidemics which afflicted Rome in the decline of the empire, to the destruction of the aqueducts and neglect of the common sewers.”†

“The environs of Modena were formerly subject to a class of diseases, denominated by Torti malignant fevers, which bore a strong resemblance to those of Egypt. At this day, they have either disappeared altogether, or are become very rare. This change has been attributed to the filling up of the ditches and morasses which surround the city and citadel of Modena, the corrupting water of which occasioned exhalations that vitiated the air.”‡

It may be interesting to compare the neighbouring countries, Attica and Bœotia, in Greece; the former seldom, the latter so often visited with Plague, as we learn from Justin, that the Delphic oracle was consulted how the evil was to be remedied; and the colonization of Pontus was recommended. In Attica, the soil is dry and rocky, and the air very pure. In Bœotia, on the contrary, the air is dense, the soil rich and fertile; the country like a basin surrounded by mountains; and in the centre a lake forty miles in circumference, without an opening to the sea. See Webster from Anacharsis.

We need not multiply facts to establish a truth which the valuable writings of Lind, Sir John Pringle,

* Webster's Hist. ii. 364. † Ibid 364. ‡ Assalini, p. 208

and others, have already sufficiently confirmed. The greater part of Europe has been acting upon the same principle for the last century; and the wholesome effects are almost every where prevailing. We see that in one country the dry and rocky surface, in another the pure mountain air, in a third culture of the ground whether plain or hill, are connected with preservation; whilst in others respectively, low swamps and heat, filthy and crowded cities, idleness, and uncultivated plains are connected with mortality from this evil.

This is matter of history: and we want not to be told that contagion was brought to the latter or withheld from the former, for a reasonable explanation. The general inference is clear, that there is a close and intimate connexion between local circumstances in cities and their environs and the dissemination, if not the origin, of pestilential fevers.

We not only prove, therefore, that in certain countries where plague and malignant fevers prevail—for I consider them subject to precisely the same laws—certain situations are so far exempt, that these diseases will scarcely enter their precincts, or if they enter, they soon disappear. But we prove, that in countries formerly visited, similar changes have wrought the same good effects for a long series of years, and an exemption as remarkable has taken place. These are positions approaching very near to demonstration, and perhaps nearly as strong in a practical, what if I say political point of view, as if it was proved that there was no such thing as pestilential contagion in existence. But the case is made out still stronger, if we reason from other countries more favourable to the generation of pestilence (where we have seen such salutary

changes effected) to our own, in which for many years our climate, or our local circumstances, or our habits, have only afforded a *short and niggardly entertainment* to the mildest form of contagious fever!

SECT. III.

OBSERVATIONS RELATIVE TO THE DEPENDENCE OF PLAGUE ON MANIFEST QUALITIES OF THE AIR AND CHANGES OF THE SEASONS.

Although, as far as matter of fact goes, we may have established the position discussed in the last section, in support of which both positive and negative evidence has been adduced; yet we must admit, that where local circumstances, such as I have noticed, are to be supposed to have been generally present, and plague only an occasional visitant; if these were the sole causes, the effect should have always followed: but as this is not the case, we must take other matters into consideration.

We shall perhaps be told, that some places very filthy have never been visited by the plague; and that others very clean have been sometimes exposed to its ravages. Though each assertion were true, the value of the general principle we are maintaining would be but little impaired. For, that the above are not the sole either generating or propagating causes, the slightest view of the histories of pestilential epidemics must demonstrate. We might follow up the same mode of reasoning with reference to all the other phenomena which have been observed to precede or accompany

pestilence, in different countries and in different years. But this would not be philosophical. Because, unless we were to repose quietly in the conclusion, that contagion from a distance gave rise to the mischief, we must continue our efforts to investigate its causes.

It is not presumed that events nearly concomitant, or even successive, always stand in the relation of cause and effect: for they may have all a more general cause still which lies concealed. I may illustrate the preceding remarks by stating, that, of the contingent or more general circumstances, which we may call *extraordinary*, that have been observed to precede and accompany pestilence, in contradistinction to those constantly operating and local as impure exhalations from filth and marshes, there may possibly be several of which individually it may be said, as of those above noticed, that *alone* they will not produce or give warning of Pestilence.

Thus neither famine, nor corrupt food, nor intemperature of the seasons, as a winter of intense cold succeeded by heat and drought and southerly winds, nor swarms of insects, nor pestilence among cattle, nor blight and mildew, nor impure exhalations from unusually extensive sources, as from slaughtered armies and putrefying locusts, are always followed or accompanied by Pestilence. Therefore the connexion between some of these events and plague, if any subsists, must be contingent or in combination with other circumstances. But the same may be said of contagion as of these. For neither does Pestilence always follow contagion itself: and therefore contagion, as an independent cause, may perhaps stand in the same relation

to a general pestilence as any one of the antecedents or concomitants above mentioned.

Now it may with some show of reason be urged, that records of signs can be of little use, which are so irregular and uncertain in their appearance that science cannot duly apply them. And I am aware of the advantages which in an argument like this the advocate for exclusive contagion may seem to possess. For he may confidently urge, that where so much obscurity prevails, it is not wise to leave principles near at hand for undefinable causes in the clouds. But he must at the same time admit, that it is much wiser to ascertain the circumstances under which this contagion will only act. For contagion itself with every possible care is as dark and insidious and uncertain in its approaches, as any of the phenomena of a pestilential constitution have ever been represented. Therefore in the one case we are on the wide ocean of uncertainty, depending on lazarettos and maritime purifications; in the other we take the matter into our own consideration, observe the signs from which our danger can only spring, and watch the citadel ourselves instead of trusting it to hirelings. Can any one doubt that if there had been more of this wise and patient attention to the internal circumstances acting in different countries on the eve of a pestilential visitation, much good would have resulted to the community? And is there a physician who would not confidently expect, that, if the accessory and local causes I have enumerated were all to be present under the circumstances related by Sydenham as to diseases—if even every ship were to be banished from our coasts for a twelvemonth before, we should have pestilence in Britain?

We may say, indeed, of the air and elements and their several signs, as of the aphorisms and prognostics referring to the human body, that there is none of them of universal application: and should we wonder at this, when we reflect that, as the habits of a nation and the constitutions of men change, they are not affected precisely in the same way by the same outward causes at one time as at another? But though this be the case, was Hippocrates to be arraigned because he did not perfect the science of medical prediction; or Lord Bacon, because his prognostics of Pestilence are not always sure?

On subjects so variable as the weather and seasons in a variable climate, and as the human body and its diseases in different countries, it is to me matter of surprise that even so many general truths as we possess should have been discovered.

I have said that since the year 1665, we have had no opportunity of tracing the origin and progress of a true epidemic Pestilence in this country. And long may we remain in happy ignorance of such an evil! Whether a proper pestilential constitution of the air may not have often occurred since, and been repulsed, because accessory circumstances have been wanting; or been only followed by minor effects, because some change in our habits and in the police of our cities has made it impracticable to raise the violence of our own diseases, or of foreign contagion, to the height of a plague; or whether our own care and exertions may not have absolutely prevented a pestilential state of the air from being generated, I cannot undertake fully to determine. Our own country would undoubtedly be the proper field for making observations

upon this important subject. But as such an inquiry must be very limited, if we go back to writers before the age of Sydenham, we must also seek information from other parts.

Lord Bacon has recorded a few prognostics of pestilential seasons, as well from the occurrence of certain diseases as from other phenomena: some of them are to be understood as præcursor signs, others as concomitants. Such as they are, I scarcely think it necessary to apologize for reviving any observations of that distinguished naturalist. But I shall premise a few remarks from Mead.

I apprehend we may conclude from the present comparative salubrity of this country as to malignant fever and plague, that what formerly applied to *pestilential* will now apply to *unhealthy* seasons; and that the signs of the latter will have reference to those indications that might possibly usher in a disease more formidable than any we have for a long time experienced.

It is I think to be gathered from the writings of Lord Bacon, that he did not doubt the possibility of pestilence originating in this country. Though he speaks of the contagion of Plague, he never hints at its being introduced from abroad; and the term pestilential constitution, which he uses, is only a translation of the *katastasis loimodes* of Hippocrates.

In what is to follow, my object is simply to inquire whether there be any rules deducible from experience which may give us warning of danger from natural signs and sensible qualities.

I cordially unite in opinion with Dr. Mead, that it is better to take into consideration "manifest causes,"

which he explains by “sensible ill qualities of the air,” than to leave them for “hidden qualities.” But after he had shown the reasonable connexion of such manifest signs with plague, we find him admitting, that “he does not design to exclude all disorders in the air *that are more latent* than intemperate heat and moisture, from a share in increasing and promoting the infection of the Plague, where it is once bred: for he says, *I rather think this must sometimes be the case.*”^{*} And again, “we learn from the observation of the Arabian physicians, that *some indisposition* of the air is necessary in the hottest climates, either to cause so exalted a corruption of putrefying substances, or at least to enforce upon men’s bodies the action of the effluvia exhaled from those substances. Both which effects may well be expected from the sensible ill qualities of the air before described, *whenever they continue and exert their force together any considerable time.*” “Now, if we compare,” says he, “the intemperature of the climate in Ethiopia with what the Arabian physicians declare, that pestilences are brought by unseasonable moistures, heat, and want of winds, *I believe we shall be fully instructed in the usual cause of this disease.*”

A few pages further, Dr. Mead follows the same view, seemingly anxious that Ethiopia should have the credit, yet admitting that something similar must take place in other parts. “That state of air which gives birth to the plague in some countries, will doubtless promote it in all. For Hippocrates sets down the same

^{*} Mead’s works, p. 183.

description of a pestilential air in his country, as the Arabians do of the constitution which gives rise to the plague in Africa.”* “Galen takes notice, that no other than a moist and hot temperament of the air brings the plague itself; and that the duration of this constitution is the measure of the violence of the pestilence.” Lucretius is of the same mind; for in his admirable description of the Plague of Athens, ‘these diseases,’ says he, ‘either come from the air, or arise from the earth.’ Mercurialis assures us, the same constitution of air attended the pestilence in his time at Padua; and Gassendus observed the same in the Plague of Digne. In short, the general histories of epidemic distempers almost constantly confirm thus much; and would have done it more, if the vain notion of occult venoms (may we not say the same of contagion from Ethiopia?) “had not prepossessed the minds of authors, and made them regardless of the manifest causes.”

It cannot but strike every impartial reader, how very nearly Dr. Mead approaches on this point, as on that respecting the difference between malignant fever and plague, and some others, to the full admission of all that his adversaries require.

And although the remarks would fall more properly in the next section, I am induced, for the sake of contrast as well as to strengthen my argument, to bring together a few sentences from the treatise on Poisons, a treatise in which he does not apply his rea-

* Mead's Works, p. 191.

sonings to any country particularly, as he does in the celebrated work on the Plague.

“The way, he observes, by which bad food, ill-ripened fruits of the earth, &c. do often produce malignant and pestilential diseases, is not very different from that by which we have observed unwholesome airs to be the cause of the like effects.”—“It must be owned that some malignant fevers are contagious, and that contagion is a real poison.”—“A famine is very often succeeded by a pestilence, and this calamity generally begins among the poorer sort of people, whose diet to be sure is the worst.”*

I hope it may not be considered any reflection upon the memory of Dr. Mead, if I remark, that these were the unbiassed sentiments of this physician long before he wrote his *Discourse on the Plague*. For his work on *Poisons* was one of his earliest literary productions. At the same time I dare not insinuate that, in the other, he published to the world any statement he did not fully believe. But I have been strongly impressed with the opinion, that there is scarcely any treatise written upon the subject, though professedly with the view of establishing the contrary notion, that contains so many convincing arguments for the indigenous origin of Pestilence as Dr. Mead's *Discourse on the Plague*. And this I partly attribute to the learning with which his mind was stored, and the variety of illustrations he was thus enabled to bring forward.

I have taken the following from different parts of

* See Mead's Works, p. 107.

Lord Bacon's works:—"Great droughts in summer, lasting till towards the end of August, and some gentle showers upon them, and then some dry weather again, do portend a pestilent summer the year following."

"Great and early heats in the spring (and namely in May) without wind, portend pestilence; and generally so do years with little wind or thunder."

"A dry March and a dry May portend a wholesome summer, if there be a showering April between; but otherwise, it is a sign of a pestilential year."

"The wind blowing much from the south without rain, and worms in the oak apple; also abundance of frogs, grasshoppers, flies, and the like creatures, doth portend pestilential years."

"The general opinion is, that years hot and moist are most pestilent: in England it is found not true; for there have been *many times* great plagues in dry years."

"If the south wind blow for a continuance, with a serene sky, without rain, it is very pestilent; for it is during the blowing of the south that pestilential diseases spread."

It may be interesting to see how far the general inferences of Dr. Short in his *Chronological History*, drawn from an extensive review, nearly two centuries after Bacon, coincide with the preceding aphorisms.

"Long sultry weather, whether the wind be southerly or long still and calm, gives life and vigour to putrid, malignant, and pestilential fevers."

"Wet years are generally pretty healthy, except some epidemic was begun before, or the wind keeps southerly, the sky cloudy, and air foggy."

"We often find that temperate or cool dropping

years are the healthiest : as the predominant west winds are of all others attended with the healthiest state to Britain, so if their long continuance happens to be accompanied with frequent rains, yet these seldom give rise to fatal epidemics."*

From Dr. Rutty's observations on the weather and diseases, we may collect a few particulars containing a somewhat different view, and applicable not only to this but to other countries ; perhaps also approaching more nearly to the real state of the case than what I have just adverted to : namely, that extreme vicissitudes are more prejudicial than any one quality of the weather long continued.

Dr. Rutty, who made his observations in Dublin, states, that " whenever we observe the usual harmony and proportion of the winds and attendant weather to vary much, we may expect an unhealthy season ; as was notoriously the case in the excessive moist seasons preceding the great frost in 1740, and the no less unusually dry season and long continuance of north-east winds succeeding the great frost for some years."†

Huxham confirms this observation in reference to England. " We very seldom see severe and pestilential fevers become very general, except after some remarkable peculiarity of the atmosphere."‡ Hippocrates remarks, that when the seasons do not observe their accustomed courses, the diseases will be unusual and anomalous : and that great vicissitudes either of cold or heat are unhealthy.§ And Ammianus Marcel-

* Short's Hist. vol. ii. p. 360. † Rutty's Hist. of Dublin, p. 418.

‡ Huxham on the Air, &c. vol. i. p. 4. § Aphor. lib. iii.

linus says, "philosophers as well as illustrious physicians have recorded, that Pestilence arises from great excess of cold or heat, or moisture, or drought." Thus Virgil ascribes the plague in Crete to a hot and dry in-temperature of the air: Livy, the plague in Rome to extreme drought after intense frost. And Mercurialis distinctly states, that during the plague of Venice in 1576, no season kept its regular course.* I need not repeat what Dr. Russel says, that before the Plague of Aleppo, the seasons had been observed to deviate from their usual course.

It may not be improper to say a few words on two of the most remarkable frosts which we have had in this country since the year of the plague. According to Sydenham, the winters of 1683 and, 84, were both very severe. In the former, the cold lasted longer than the oldest person living remembered. The summer and autumn of 1684 were intensely hot and dry. As soon as it began to thaw in February,† an epidemic fever appeared, which spread itself all over England. It was more epidemic in other places than in London.‡

Dr. James Sims observes, that 1684 and 85 are remarkable for the greatest number of Burials that occurred in London from 1665 to 1714. In 1684, we are told that a malignant dysentery raged over Europe.

The following facts are taken chiefly from Short, Sims, Huxham, and Ratty.

The winter and spring of 1739-40, were the most

* Mercurialis de Pestilentia. † Whether Sydenham means 1684 or 1685, is not clear, as both years are mentioned. ‡ Syd. p. 543.

severe and frosty that had happened for 300 years. It was remarkable too, that the preceding autumn had been very rainy, like that of 1664, so as to cause a rot among sheep, which continued all the year. The cold lasted till June; and a severe winter also followed. The state of the poor of the nation was miserable, from the cold and scarcity of provisions. The effects were first conspicuously manifested in the western and southern parts. For in 1740, a malignant petechial fever made great havoc in Bristol, and Galway in Ireland, where it fell little short of a Plague; and it did not reach London till 1741. But Dr. Sims observes, that this and the last year were the most mortal ever known in London, except when the plague reigned; the burials amounting to 62,980, whereas they were only about 50,000 the two years preceding.

Huxham is very full in his account of the calamities of that time at Plymouth. "Early in the spring of 1740, says he, appeared pleurisies, quinsies, and a putrid fever with pulmonic symptoms, every where frequent. In April, this fever was attended with petechiæ; in May, more malignant, with black livid spots, chiefly raging among the sailors and lower class; in June, appeared parotid swellings; in July, buboes and phlegmons (furunculi) often breaking out between the 9th and 14th days; in August, the petechiæ almost disappeared; and in September, the disease was nearly spent in the town, but was at the same time very destructive in the country. In May, horses, oxen, and sheep fell a prey in great numbers to epidemical distempers.

The next year 1741, was still more pestilential. The same putrid malignant fever prevailed in Devon-

shire and other parts : but although it had ceased in Plymouth, violent epidemic diseases raged there at the same time.

In May, June, and July, there were innumerable caterpillars, grasshoppers, and flies ; which appeared also in immense swarms the following year, with abundance of wasps and many rabid dogs ; when the same pestilential fever raged at Launceston, and in several country places on the sides of the mountains ; and the putrid sore throat commenced its ravages in various parts of England.*

“ In July 1741,” says Short, “ began a malignant spotted fever among the poor, who had been half starved the last two years, and obliged to eat unwholesome things : but in autumn this contagious epidemic extended to the rich, and was more general and fatal than any disease I had ever seen before. Like the Plague, it swallowed up all other diseases ; and buboes and carbuncles only were wanting to denominate it a plague.†”

It was computed, according to Rutty, that “ there died in Ireland near 80,000 of famine or diseases in that season ; on which occasion, says he, I cannot but call to mind that memorable and unusual suspension of our soft endemial or trade winds of the west and south-west, attending the great frost in 1739-40, with the great mortality ensuing.”‡

Rutty concludes with these words—“ Lastly, the effects of these several grand frosts, as far as I can

* Huxham de aere et Morb. Epid.

† Short, ii. p. 289.

‡ Rutty, ii. p. 283.

learn from the records preserved of them, were very much alike: and there appears also to have been a great similarity in the diseases attending these several frosts, even by the accounts given us of that of 1708 and 1716, compared to 1739-40. That of 1708, spread an universal mortality, first among *tender infants*, *decrepid old men*, and *valetudinarians*; and the prevailing diseases were coughs, pleurisies, &c.; besides an uncommon frequency of *apoplexies*, suddenly mortal. And so, the diseases prevailing in the great frost of 1715-16 were much like those above-mentioned; and those I have mentioned in 1739-40, were very much alike; to which add that in the summers of 1666 and 1684, both intensely hot and dry, and preceded by very cold severe winters and drouhty springs, dysenteries prevailed over most parts of Europe; even as with us in 1740 and 1741, which were summers alike circumstanced as above. From all which we may with great probability conclude, that whenever like causes occur, like effects will follow.”†

Before I dismiss this part of my subject, I shall say a few words by way of comment on some of Dr. Rutty's observations. I may therefore premise, that

Dr. Rutty, ii. 352. † Ib. ii. 353.

Dr. Rutty makes a remark of some importance in a meteorological point of view; viz. that “upon comparing a diary of the weather kept in Cork through the years 1739, 1740, 1741, with his own in Dublin, they exactly agreed. And in a comparison of the state of the weather and winds, as observed by Dr. Huxham of Plymouth, with his own registry in Dublin during a series of twenty years, the weather and winds, with a very few exceptions, were the same in both places. Ib. ii. 359.

it scarcely seems correct to suppose that epidemic diseases are immediately connected as cause and effect with the state of air then actually present ; though it may be natural enough to refer morbid effects to an immediate agent. For the mischief may have been done by a series of preceding changes : and therefore, I believe, the kind of weather in which an epidemic spreads itself, is of far less consequence than is commonly imagined. Indeed, we are compelled by the histories of most diseases of the kind to draw this conclusion. Lord Bacon, with his usual discrimination, seems to have been well aware of this, when he says, “ That many diseases (both epidemical and others) break forth at particular times ; and the cause is falsely imputed to the constitution of the air at that time, when they break forth or reign ; whereas it proceedeth, indeed, from a precedent sequence and series of the seasons of the year. Therefore, says he, Hippocrates in his prognostics makes good observations of the diseases that ensue upon the nature of the four precedent seasons of the year.”

Disease is often a consequence of the combined action of many different causes, both past and present, and has a connexion with age and sex, constitution and predisposition ; and daily experience, on the testimony of some of our most candid observers, proves, that diseases avowedly contagious do often originate spontaneously amongst us.

It must be obvious that the state of health and predisposition will much depend on the manner in which the body has been acted upon for a long time previously, by morbid causes ; how it may have been excited by heat, or braced by cold, or weakened by

their alternations, or contaminated by animal filth and impure air, or relaxed by fatigue, or exhausted by famine, or stimulated by hurtful repletion, or vitiated by corrupt food. And if we suppose a case in which all these causes may have been acting in combination, the circumstances of the moment in which the body yields its strength to their united influence, must be considered of but small account in the scale. Now, as some or other of these debilitating causes prevail, we may presume that, according to a variety of local circumstances, scurvy or mild contagious fever, or yellow fever or plague will be produced.

It must also be obvious, that the different seasons will affect constitutions differently; and if these seasons shall have been very irregular, then, in an intense degree. We find, accordingly, that in such different seasons, in whatever degree epidemic diseases may prevail, and however contagious they may prove, the constitutions which are chiefly affected by a series of epidemics in one season, are commonly relieved from the epidemics occurring in the opposite, and *vice versa*.

For, the seasons have not only their immediate effects, but their remote; and those upon whom the former directly operate in the production of disease, are usually exempt from the latter. Thus there are injurious powers which immediately affect some, whilst others who are apparently in the full enjoyment of health and vigour, during the action of those very powers, are perhaps either secretly undermined, or only the better prepared for the debilitating operation of that altered state of things, which is hastening to try themselves in their turn. As these have been brought to the summit of health in one season, how

should they expect to retain it in the opposite? If epidemics of a certain character prevail during frost, it is hardly to be expected that the class of persons who have been the victims of these, should equally suffer in extreme heat, when a new series has the dominion. And it might naturally be looked for, that those to whom the former state of winter cold had been congenial, should be the first to yield their vigour in a pestilential autumn.

It may now perhaps be possible to shew, that the contagion of Plague itself is not powerful enough to overcome the influence of these principles; but that it is weak upon those who have lately submitted to other orders of epidemic diseases; and, when the season is about to change which favours it, that it begins also to lose its power even over its wonted victims.

Let us, therefore, inquire, who are they that generally suffer from the effects of cold intemperature?—tender infants, decrepid old men, and valetudinarians. Now, these are the very classes exempt from plague: for we find, that the usual subjects of pestilential fever or plague in its autumnal ravages, are the *young, robust, and middle-aged*; and the exemption of the former is specially noticed in almost every history of a pestilence. “We were informed,” says the author of the article Contagion in Rees’ Cyclopædia, “by a gentleman who resided in Malaga during the plague at that place, that the appearance of the town after the cessation of the fever was very remarkable, in consequence of the small number of strong, active, and well-looking people who were to be seen; old people and children constituting almost the whole of the remaining population.” This writer concludes, “the Plague

in general is more fatal to the vigorous and middle-aged than to the old or children." The exemption of these and of valetudinarians is treated of in another place.

The frequency of apoplexy after intense frost is remarked particularly by Ruttty and Huxham, and was observed by Baglivi and Hippocrates; and I had prepared some illustrations, but fear to digress from my immediate subject so far as to insert them.

It is observed by Fothergill, Willan, and Bateman, that moderately wet seasons, whether in winter or summer, are productive of less mortality than dry frost or dry heat. It is obvious that rain in winter must temper the cold, as in summer it will temper the heat: therefore extremes will be avoided, which in this climate are found to be not favourable to health: and when extremes, each of long continuance, succeed each other, the effect is still more prejudicial.

In the conclusions of the accurate observers just noticed, we do not find what classes of the people are benefited and what are injured by the same state of weather; who feel the good or ill effects immediately and who subsequently; what classes of disease are the natural consequence of each different state; and whether those who are exempt in one state do not suffer for it afterwards in proportion.

For a season may be sickly, though but few deaths occur: a season may be fatal to many, though the generality are in health: a season may be fine and at the commencement healthy, but at the decline the contrary: a season may be also generally healthy; and yet the consequence of that healthy season, when a change takes place, may be very serious. For, some suffer by

the contrast: and, as Say states in his Journal, "when preceding years had been most favourable and healthy, that such as died when a change took place were such as had been kept alive by the kindliness and favourableness of the seasons, beyond the ordinary course they could otherwise arrive at." See Short.

The conclusions of Dr. James Sims, drawn from a review of the epidemic constitutions and weather, for two centuries, are to this effect. "That the most natural and healthful seasons in this country are a moderately frosty winter, showery spring, dryish summer, and rainy autumn; and while such prevail, the wet part of them is infested by the greatest proportion of complaints, but those not of the most mortal kind. That a long succession of wet seasons is accompanied by a prodigious number of diseases; but these being mild and tedious, the number of deaths are not in proportion to the coexistent ailments.* That on the other hand, a dry season in the beginning is attended with few complaints, the body and mind both seeming invigorated by it: if however this kind of weather last very long, toward the close of it, a number of dangerous complaints spring up, which, as they are very short in their duration, the mortality is much greater than one would readily suppose, from the few persons that are ill at any one time; and as soon as a wet season succeeds a

*Dr. Percival says, "it has long been remarked, that protracted dry weather is peculiarly productive of fever in Dublin; and that rainy weather, which is the prevalent character of the climate, agrees best with the general health of its inhabitants." See Dr. Cheyne on Fever. Dublin Hospital Reports, vol. ii. 38.

long dry one, a prodigious sickness and mortality come on universally. That so long as this wet weather continues, the sickness scarcely abates, but the mortality diminishes rapidly; so that in the last of a number of rainy years, the number of deaths is at the minimum. And that the change of a long dry season, whether hot or cold, to a rainy one, appears to bring about the temperature of air favourable to the production of great epidemics."*

If it be sufficiently ascertained from past experience that a long series of dry weather is rather in its consequences productive of mortal diseases than the contrary, it is of importance to fix in our recollection the observation from Say's Journal, for a period of sixty years, that "if the mercury in the barometer, during the whole month of January, keep at or above thirty inches, tis a sign that next spring commences a set of dry years." Dr. Short says, "the same I find confirmed from my Journal for thirty years past." Short, i. 494.

SECT. IV.

OBSERVATIONS ON THE CONNEXION OF PESTILENCE WITH INSECTS, DISEASE AMONG BRUTES, FAMINE, &c.

Upon the subject of the weather and its prognostics relative to pestilence, I almost doubt whether past observation will enable us to attain any thing more certain than what has been laid down. But, from the

* Memoirs of the Medical Society, vol. i. p. 446.

preceding facts, it is clear that we are not left to judge entirely from the weather and its immediate signs.

The state of the soil has already been considered. I shall now, therefore, advert very briefly to some other circumstances. Upon all these subjects, a far more comprehensive body of facts and observations is yet requisite, not only in different countries, but in the same, before a complete induction can be expected. Perhaps the inference from peculiar states of the soil and of cities is the most decisive. And yet all may assist the candid inquirer in judging of and anticipating the event. In such an investigation, it must be difficult to separate the action of exciting from that of predisposing causes : I suspect the predisposing have the greater influence.

Many writers have ascribed the origin of plague solely to the pestiferous effluvia from putrefying locusts. But I am inclined to consider the prodigious swarms of these insects rather as an effect of that state of things favourable to pestilence, than a cause of the calamity. In dry and hot seasons, however a warm and humid atmosphere may have tended to foster their generation, when they are multiplied and brought to perfection in such clouds as to darken the air, and overspread whole countries, so as to destroy the fruits of the earth, and to devour every green thing ; the consequence must be a want of provisions in ill-regulated countries. The flocks and herds must suffer when their supply is thus cut off, and he who depends on them be affected at last. In this way, the phenomenon may concur with other causes. But, that the mere putrefaction of locusts will occasion a pestilence, I have found nothing in history strong enough to induce

me to conclude. I also doubt whether animal putrefaction of any kind has ever produced such an effect. We have heard indeed of whales on the sea shore, and corrupt carcases of the slain after great battles polluting the air with pestilential poison: but we are called upon to exercise the same distrust in regard to these stories, as to the improbable rumours of contagion from old chests and cords and quilts, as related by Forestus, Alex. Benedictus, Fracastorius, and others. Not that such facts as the former might not have occurred: but their agency as sole causes is a very different subject. It is very certain from the histories of several plagues in our latitudes, that unusual swarms of various tribes of insects have been observed during the year of the calamity. I do not however recollect any instance where this sign has occurred the summer after an intensely cold winter. When the winter has been mild, then a hot and dry summer has favoured their production. For, as cold will destroy their ova, so, much rain will wash them away when brought to perfection. Thus, in accounting for their presence or absence, we must take other matters into our consideration. In what manner they are connected as an effect with pestilential seasons, it may be difficult to explain. Long dry weather will scarcely in itself account for their unusual abundance. A variety of causes, therefore, favourable to animal and vegetable putrefaction, by which the insect tribes are chiefly sustained, must be supposed to co-operate.

If a state of weather favourable to putrefaction be also favourable to the fecundity of insects; and if the former state has often been observed in time of pestilence, we cannot wonder that the latter phenome-

non should coincide. But it is an old observation, that during the prevalence of plague, all kinds of meat have had a tendency to rapid putrefaction; how far in excess beyond the usual degree in sultry seasons, when the disease commonly spreads, can only be surmised: for it must be difficult to institute a comparison.

We cannot, however, have much difficulty in imagining, what many facts indeed amply confirm, that the hurtful causes which operate upon the human constitution should operate in degree on the lower animals; and that we should have warning of danger when their delicate senses and more natural modes of life make them first susceptible of the approaching mischief. It would be desirable to possess a correct history of the epidemics among sheep and cattle in this country, stating particularly the dates when such diseases make or have made their appearance in different parts.

Short says, that with respect to the diseases of brutes, "rainy years are more fatal to sheep in low marshy countries, from the rot; and drougthy years to cattle from a contagious murrain."*

But Dr. Rutton observes, that "notwithstanding the great moisture of the winter of 1735, or rather the continued extraordinary moisture of several seasons successively; yet that no general rot appeared among the sheep then, nor for many years past. That disease, therefore, when epidemic among them, seems truly to be like a murrain or pestilence among other cattle, which invades sometimes this, sometimes that species of animals, not from mere redundant moisture,

* Short's Hist. vol. ii. 363.

but from other causes. So in 1749, he continues, there was no rot among the sheep, notwithstanding a like wet winter and cold spring: so that it should seem that wet seasons, though they may promote, do not for the most part generate this disorder, but that it is owing to more latent causes.”*

As these remarks have reference to what I am to state on the connexion of the diseases of brutes with those of the human species, I shall add a few more particulars from Dr. Rutton on the subject. “After two extremely wet summers in 1751 and 1752, the former common to England and Germany, as well as Ireland, a rot appeared among the sheep at the latter end of the season, and became general in the low and moist lands through most parts of the kingdom. From the observations annexed to the year 1735 it appears, that wet seasons do not necessarily produce this disease among sheep; which will further appear by observing, that a general rot among the sheep, as I am well assured, did also prevail here A. D. 1716, after the great frost of 1715; also A. D. 1708, was another great rot among the sheep here, and likewise in 1740, both which two last years were remarkable for having been signally frosty, and consequently attended not with excess of moisture, but excessive dryness.”†

I have introduced these remarks for the purpose of comparing the disease of cattle from a very wet autumn in 1664, which preceded the great frost that ushered in the pestilence of 1665, with the diseases that followed the great frosts of 1708, 1715, and 1739-40:

* Rutton's Hist. ii. p. 336. † Ib. ii. 398.

and if we give any credit to the rumoured cause of the great plague of 1625, viz. "rotten mutton at Stepney," we shall have several coincidences that it is desirable to keep in view.

Some writers have observed, that when the offending cause arose from the earth, the lower animals were first affected: but when the mischief sprung from the air, the birds shewed the earliest indications by their death or flight. The vicious qualities of the soil I conclude may react on the air, and those of the air perhaps on the soil. But as to the distinctions above made, I suppose there is nothing but conjecture to support them. It is, however, remarkable, that we should possess so many authentic accounts of birds entirely leaving infected places; and there is scarcely any fact that so clearly indicates a state of the atmosphere, deprived of something salutary or containing something hurtful. If this be a point we may take for granted, then it may not be unfair to argue, that the air of certain places is changed in its qualities, probably by some admixture of effluvia, and to a considerable altitude, distinguishable by the delicate senses of birds, but eluding the human. Whether this change may have any thing to do with oxygen or hydrogen, or azote, or carbonic acid gas, or the electrical fluid; or whether it be an unknown principle, rarely produced and partial in its currents, like the Samiel, is quite uncertain. These things must be left to future inquirers.

Of the physical connexion of famine and unwholesome food with the causes that unite in producing predisposition to disease, it is almost unnecessary to speak, after what I have already adduced. Famine and Pestilence have been united by a supposed (may I

not say a real affinity from the earliest times. It may be observed, however, that the effect, if the latter be the effect, does not immediately succeed the cause, sometimes not for a year or two; and that the season of an epidemic plague has sometimes been remarked for an abundant and healthful supply of food. Now, it is not difficult to connect in reasoning deficient or unwholesome aliment, with great and long continued intemperature of the air, when the seasons are as it were diverted from their accustomed regularity. "Certain it is," says the able writer of the article *Epidemic Diseases* in Rees' *Cyclopædia*, "that famine and pestilence have been observed to go together, since the earliest ages of the world; and are constantly mentioned in combination in the sacred writings; to which war is frequently added. Dearth is almost necessarily a part of the desolation of war; which therefore contributes to the production of pestilence indirectly by producing dearth. Where articles of food are extremely scarce, they are often also corrupted, and may thus contribute to reduce the human constitution to a state predisposed to disease."

"Forestus imputes the Plague at Delft, in the year 1557, to the eating of mouldy grain, which had been long kept up by the merchants in a time of scarcity. (*loc. cit.*) And Sir J. Pringle says, he had heard it observed, that in this island the dysentery is frequent among the people in those parts where they live mostly on grain, when the preceding crop has been damaged in a rainy season, or kept in damp granaries."

"In ancient times, the corruption as well as scarcity of food was assigned as the cause of pestilence; as by Cæsar himself, when besieging Marseilles. When we

advert to the fatal epidemic disease termed *Feu sacré*, *Mal des ardens*, &c. by the French; and known to originate from *ergoted* rye, used as food, we shall not hesitate to ascribe considerable effects to the sort of food just mentioned (See *Philos. Trans.* vol. lv. p. 110. and *Mem. de la Soc. royale de Medecine*, for 1776.) Dr. Willan has observed, that the *Morbus Hungaricus*, described by Sennertus, and some other diseases reputed pestilential, might be added to the list of epidemics occasioned by the *ergot*; or by a similar degeneration in other grain. The sweating sickness, which occurred more than once in England, at the beginning of the 16th century, was perhaps owing to some disease or depravation in wheat, &c." (*On Cutan. diseases*, part iv. p. 499.) The same writer observes, that the only epidemic occurrence of contagious fever in London for a number of years, took place after the excessively wet autumn of 1799, when corn was exceedingly damaged, and a considerable scarcity ensued.* To this I may add, that the fever which began in 1817 in Ireland, followed the rainy and damaged harvest of the preceding year. And although there was abundance of every thing, especially fruit, in 1817, the disease pursued its course: and the unusual heat and drought of the following year, not only in Ireland but in England, subjected thousands to an epidemic dysentery, which proved fatal to many.

With this subject, the state and condition of the poor are intimately connected. As these are first subjected to the cause, so their exhausted bodies are the

* Rees' Cyclop. Art. Epidemic.

jected to the cause, so their exhausted bodies are the fit soil where the disease first scatters its seed.

Mercurialis justly observes, that the true and principal *fomes* of pestilence is the poor miserable crowd of the lower orders, who not only by their confined way of living, but by their unwholesome food, are liable to be *soonest* infected, as well as to spread the disease *most rapidly* from one to another. He also remarks, that rulers should be especially careful about the state of the poor; above all things, to provide for them proper food and in sufficient quantity: for, he says, Galen and Avenzoar, and many historians inform us, that pestilence has frequently arisen from no other cause than a scarcity of corn, and unwholesome food.

Now seeing the most enlightened observers have borne testimony to the connexion I have noticed, and that it is therefore far from being hypothetical, I apprehend we may reasonably infer, that by the operation of such a cause, the human body is gradually brought into a state which is favourable to the attack of pestilential fever. Galen does not seem to have been far from the truth when he assigns to pestilence two causes: the one a great irregularity in the seasons, and consequent pestilential state of the air; the other a vitiated state of the human body, from corrupt and deficient food; by which means it is rendered liable to fever from very slight causes.* I must again advert to the article, from which I have already quoted, in the

* Fuchsii Obs. p. 249.

Cyclopædia, where I think we may recognise the speculations of Dr. Bateman, that “when the bodies of the people happen to be predisposed to disease by want of food, or actually disordered by corrupted food; when the accumulation of filth, or the increase of marshy ground from rain or inundations, send forth miasmata in a most abundant and concentrated form, in consequence of a peculiar autumnal season, the most extensive epidemic diseases may be expected to arise. *And we believe, that under such a combination of obvious circumstances, pestilence never fails to appear.*”*

I consider these remarks to be a fair and conclusive winding-up of the argument.

On the subject of predisposition, a great deal more might be said, perhaps without wandering into the regions of conjecture.

In a connexion of events like those above stated with pestilence, there is surely nothing so marvellous as to draw for any uncommon degree of credulity. It is, perhaps, because so great a variety of circumstances, both past and present, local and general, individual and common, require to be taken into account, that we are at present in such a state of ignorance concerning the signs and causes of epidemic diseases. And therefore this uncertainty may be more owing to the limited nature of our observations, than to the difficulty of the pursuit, or the absolute impracticability of its object. If one man only looks to a cargo of merchandize for the cause, and another to a swarm of flies

* Loc. cit. verbo Epidemic.

or a distant earthquake ; and if a third confines his attention to the present season, without taking a thought of the past ; it may be expected that science will be as little advanced, and the public as little profited, as if each had forborne his observations entirely : unless, indeed, the collected observations of all can be afterwards applied to the elucidation of some general principle. For my own part, when I consider the variable nature of the seasons, even in climates far less liable to changes than our own, I am not surprised that the phenomena of epidemics have been so uncertain, and their causes so much involved in doubt. Yet after taking into consideration even the few circumstances of the most notable epidemic plagues that have been handed down to us ; and weighing the variety of causes which must necessarily unite to produce a pestilence, I can scarcely bring myself to think that we are so much in the dark with respect to the mode of its invasion as is commonly apprehended. I cannot therefore believe, that by merely guarding our coasts from diseases, the production of other climates and other nations of men, we are taking the most effectual means to preserve our own. For it appears to be in the highest degree probable, that when all those circumstances usually considered subordinate are present, as of soil and season, famine and filth, malignant epidemic fever, &c. ; then plague will be produced without any foreign contagion : and it appears to be as clear that without the former, no foreign contagion need be dreaded. And although Dr. Bancroft has taken a very different view of the subject to that which I have entertained in the preceding pages, I avail myself with pleasure of his candid and comprehensive observation,

“ that it is fortunate for mankind, that the communication of the contagion of plague depends upon the co-operation of so many favourable circumstances, and particularly on that of a suitable temperature, and of certain aptitudes and susceptibilities in the human subject.”

I am therefore willing to hope, that an attention to the foregoing principles, with a wide and comprehensive survey of past and present seasons, past and present diseases, &c. will enable the intelligent physician to anticipate, and perhaps the wise politician to guard against future visitations.

SECT. V.

OF THE PROGNOSTIC SIGNS OF PESTILENCE FROM DISEASES, AND GENERAL SUMMARY.

In this section, I propose to consider a few facts, which have not been noticed in Chapter VIII. As if to baffle research, the plague has not only sometimes occurred in a year and season of plenty, but at a time when other diseases have been remarkably rare. Hence, an invariable rule cannot be laid down on this point any more than on the other. Yet, I believe, in the majority of instances, that epidemic diseases usually mark its approach ; and when these entirely cease, as they sometimes do, for several months before its appearance, it is not because the multitude is in the full enjoyment of health, but because the enemy is in secret collecting his forces, by undermining the vigor to strike a decisive blow. This state of calm, therefore, it is of great importance to bear in our remembrance,

when other circumstances shall have occurred to awaken reasonable fears.

Lord Bacon speaks of the small-pox, measles, and purple fever portending pestilence: and Sydenham's history confirms the observation. Schenkius observes, that in the year 1573, dysentery, measles, and purple fever were epidemic: and that for some time he presaged, that this malignant fever, which for nearly two years had overspread a considerable part of Europe, would pass into the true plague (*in pestem apertissimam transituram,*) and that he was not deceived in his opinion.

In the same manner, says Horstius, small-pox, measles, dysenteries raging epidemically, are very often forerunners of pestilence.* It would appear from Jackson's account of the plague in the empire of Morocco in 1799, that the small-pox is its usual precursor in that part of Africa. I have already noticed the connexion of the petechial or spotted fever with the plague, not only in this but in many other countries. Dr. Short remarks, "that in his previous histories of epidemic fevers may be seen the great affinity there is between the plague, spotted and pestilential fevers: that the last often turn to the first, as in 1568, 73, 97, 1598, 1601, 25, 26, &c. On the contrary, the plague often terminates in these fevers, as in 1556, 1564, 1666. Or if it is a Plague in one place, it is a spotted fever in another; as in 1564, 68, 74, 92, 97, 98. 1626, 35, &c."†

The spotted fever, therefore, would seem to be the

* Horstius, p. 253, cited by Webster. † Short, vol. ii. p. 436.

malignant fever of Dr. Mead, which usually precedes the plague; and which occurring at an early part of summer, under a combination of suspicious circumstances, must always be accounted portentous.

Although we may be unable to know much from diseases in the way of warning, until the evil is begun, yet there is one circumstance which deserves some attention; if, for want of confirmation, the remark be not crude and trifling. We find that at the beginning, in several plagues, young persons have been first attacked: as the young man mentioned by Hodges in London; the daughter of Salvator Borg, at Malta; and the first cases at Marseilles. A very great proportion also of Dr. Russel's cases are the young and robust. With regard to Marseilles, it is remarkable that the four cases produced by Deidier as proofs of the existence of malignant fever or plague in Marseilles before the 25th of May (when the supposed contagion arrived,) were all in young women. "Mademoiselle Augier died on the 19th or 20th of April: a parotis appeared on the 13th. Mademoiselle Constan had a carbuncle with fever on the 3rd of May. Mademoiselle Bote was seized with a violent fever on the 20th of May: on the 24th, a bubo was discovered in the groin. Mademoiselle Carwin was taken ill the 16th of April: a parotis appeared the 28th or 29th, but disappeared on the third day, and she died the day following."* I do not pretend that the fact is universal: and I am aware that it must be difficult to ascertain exactly such cases. But I think the circumstance

* See Russel, p. 215.

should not be wholly overlooked in judging of danger ; especially as the young and robust are the chief subjects of pestilential fever. There may seem an inconsistency in this class being most liable to pestilence, when the poor and famished are the persons among whom it commonly begins : and I feel myself unable to explain the secretly operating causes of predisposition, with many of which we must often be unacquainted. But, one thing is certain, that if predisposition be slowly acquired by a course of morbid action, the young and robust are least able to resist the evil ; as I conclude, a young and robust person would sooner perish from hunger than another.

Dr. Emanuel Timone has recorded an observation, which, if it be true, can only relate to persons who formerly suffered from the disease. But we must be anxious to avail ourselves of every little help in the inquiry ; and, therefore, I insert it, together with a few similar facts from respectable sources, which seem to afford some confirmation. " Many," says Timone, " cured by the resolution of a bubo, if, in the following years, they go to places infected, they will perceive an obtuse pain in that part where they had the bubo."*

Boyle states, " That about three months before the late great plague began in London (in 1665,) a person came to Dr. M. to desire his advice for her husband ; and upon inquiry, she said that he had a swelling in the groin, and upon that occasion added, that her husband assured her of his being confident that the next summer the plague would be very rife in London :

* Short, ii. 153.

for which prediction he gave this reason, that in the last great plague (1636) he fell sick of that disease, and had a pestilential tumour; so in two other succeeding plagues, though much inferior to that great one, each of them had a rising in his body to be its forerunner: and now having a great tumour in the forementioned place, he doubted not but it would be followed by a raging pestilence, which accordingly ensued." Boyle continues—"Having heard much talk of something of this nature, as related by the Doctor; I enquired of him how much of it was true, and received for answer the foregoing narrative.*

In Boyle's correspondence, another fact is mentioned still more extraordinary, which will probably excite the doubts of many readers. It is communicated by a gentleman named Beal.

"A person very creditable told me as followeth:—That he knew a good old woman, aged 80, who said often in his hearing, that she could know if the plague were within thirty miles of her, by a pain she had in three plague sores, which sores she had in her younger days. Her abode was at ten miles distance from Gloucester, ten from Worcester, twelve from Hereford, and above thirty from Shrewsbury; and she remembered the plague in all those places several times."†

In the Journal of the Plague, the case of a person is mentioned who, in the year 1665, it is said, knew by the smarting of a wound he had in his leg when he was in an infected place, so that he was warned to escape; but the detail is given in so loose a manner,

* Boyle, vol. v. p. 186.

† Ibid vol. v.

that I place little reliance upon it.* However little application the preceding story may have to the case before us, I must attach far more credit to the very striking particulars recorded by the learned Sauvages, in his Nosology, relative to the plague in the south of France in the years 1720 and 1721. But it is necessary that I should premise what we learn from the same author,—“that the plague both at Alet and Aix seemed to intermit three or four times in the year; so that after two recesses of about a month each, when not a single case of infection remained from one month or the other, many were seized with the distemper, suddenly, and almost on the same day, at Alet, as well as at Aix and Marvejols; and again after a few months, the plague disappeared in each place. From which circumstance being many times repeated, it seems to be inferred from the observation of the physicians at Alet, that the principle of pestilence is to be sought for no less in the peculiar constitution of the air, than in the bodily predisposition of the inhabitants of the same country.” The fact I allude to is as follows:—“Dr. Privat, an excellent physician, who had previously been absent from Alet, came to the city at the beginning of the Plague, and as he was entering it, he began to feel a pain in the inguinal gland; which pain continued during the exacerbations of the epidemic, but ceased in the intermissions; so that he more than once predicted the return of the accessions by the pain in his groin, the forerunner of the distemper. He, therefore, very properly ridiculed the notions of the vulgar as

* Journal of a Citizen, p. 220.

well as of the magistracy ; who, as often as the plague returned, traced it to some illicit intercourse or infected merchandize, both at Alet and in other cities. And in consequence of this prejudice, many who had transgressed the law were put to death, as though they had been guilty of a renewed propagation of the disorder.”*

I confess it appears to me, that it would be difficult to produce a more convincing fact than the preceding : and it rests on an authority which, I suppose, few will be found to question. We might almost build the whole doctrine of an indigenous origin upon this single case. And I leave it without comment ; for it appears to carry its own evidence with it.

It has been remarked by some writers, that abortions have been very frequent on the eve of Pestilence. Diemerbroeck reckons the fact among his promonitory signs ; and states, that Alex. Benedictus, Forestus, Sennertus, and many others, have observed the same.†

With respect to all the prognostic signs of pestilence, I conclude, if any reliance is to be placed upon the course of past events in reference to the future, that the plague will be found, with very few exceptions, to be generally preceded by certain indications ; varying, however, considerably in different climates. I have, indeed, in the latter part of this inquiry considered the case of Great Britain particularly, and have brought into view the observations of those English writers, who have compared the diseases of this country with the state of the weather. But whilst I endeavour to recapitu-

* Sauvages Nosol. Method, i. 414.

† De Peste, p. 13.

late these indications, I cannot but subscribe to the conclusion of Dr. Heberden, that "our exemption from the plague is not so much to be attributed to any accidental absence of its exciting causes, as to our change of manners, our love of cleanliness, and ventilation, which have produced amongst us, I do not say an incapability, but a great unaptness any longer to receive it."* "Any improvements which our quarantine laws may have undergone, are by no means adequate to such an effect."†

1. Including, therefore, the co-operation of filth and certain states of the soil, Pestilence is to be feared if there has been a long intemperature of the seasons, any quality being in excess, and opposite qualities immediately following each other, as drought and moisture, heat and cold; if there be unusual calms, and the south winds have blown for a long continuance without tempests or thunder, the clouds hanging low, and long threatening rain without any falling, the air sultry, and meteors frequent.

2. If there be great abundance of insects and reptiles, as flies, spiders, beetles, frogs, snakes, &c.; and if birds forsake their nests and young.

3. If there be mortality among sheep and cattle; and if there be famine, or even a great abundance of unwholesome food.

4. If untoward epidemic diseases appear, or if the common diseases assume anomalous symptoms; and if there be a gradual increase in the Bills of Mortality;

* Heberden's Obs. p. 96.

† Ibid 69.

if these epidemics suddenly take their departure; or if common petechial fever has been raging some time, and goes on increasing progressively in malignity and danger.

5. If many persons, particularly the young, suddenly die, without any obvious cause, in the beginning of the summer; if abortions be frequent; or if there be indications like those recorded by Boyle and Sauvages.

6. If pestilence rages in a neighbouring country.

I shall conclude this Section with a few corollaries, some of them of practical import, which seem to be deducible from the foregoing observations.

1. Condensed human effluvia, the product of local filth, and crowded ill-ventilated houses, are connected with the origin of almost all epidemic plagues; and their dissemination has been generally in proportion to the extent of these local causes.

Hence plagues have usually first appeared in those situations where multitudes of human beings have given greater efficacy to the causes; as in large cities, in harassed and broken armies, in crowded hospitals and jails.

Therefore, cleanliness in person, in houses, and in streets, is of essential importance to prevent the first germ of contagion from coming into existence, or supporting its existence amongst us.

Hence, all great cities which since the middle of the 17th century have adopted judicious regulations in these respects, viz. in the construction of houses, in widening, paving, and cleansing the streets, in the removal of all sorts of impurity, in a plentiful supply of

fresh water, &c. have experienced a corresponding exemption from this evil: and therefore it may confidently be predicted, that all others which follow the same wholesome regulations will be also exempted, making due allowance for the difference of climate and situation, and for extraordinary circumstances.

2. All cities and towns placed in unhealthy situations, as in the vicinity of marshes, and corrupting lakes, or at the mouths of muddy rivers near the sea, have, *cæteris paribus*, been the first attacked with pestilential diseases, where the other local causes above mentioned have been also exerting their influence. And all cities so placed, by draining marshes, turning running streams into stagnant lakes, by shutting out the sea from fresh water ooze (which is known to produce a more destructive miasm than salt or fresh water alone,) have been rendered proportionably healthy. Therefore we may conclude, that like causes will be followed by like effects.

3. Epidemic plagues have generally followed intemperature of the seasons, the horrors of famine, and the desolations of war. Hence the poor have been the earliest and the principal victims; and those whose bodies have been most impatient of elementary changes; and whose minds have been agitated by fear, contending emotions, and civil broils. Therefore it must be an imperious duty for rulers to provide for the poor in time of plenty against the time of need, to promote the arts of peace by which a country is tranquillized and enriched, and avoid the evils of war by which it is impoverished and alarmed: and should unavoidable calamities occur, then, if all the wisdom of man can dictate be put in practice, without question, the best

possible defence against a general pestilence will be set up; though danger be on every side and contagion in every port.

4. Epidemic plagues have generally followed a stated rule in every place, both in the time of their beginning and the time of their decline.

Therefore, in other times or seasons of the year, their dissemination may be pronounced to be highly improbable; and if the mortality shall be very severe, they will cease at the usual time: but if other epidemic diseases start up, their decline may be prognosticated with more certainty, though in such cases their return will be more probable than if this interruption to the regular progress had not taken place.

5. In every epidemic pestilence, multitudes of those fully exposed to the contagion have not been affected by it; others have been affected very slightly; others have been relieved from the sufferings occasioned by previous chronic disorders; others, though separated from their blood-relations, have been seized at the same time with them; others, valetudinarians before, have enjoyed unusual health and alacrity during the whole period; and others have been seized with the disorder, without being able to trace it to any possible source.

Hence, the risk of infection and of danger is by no means so certain as to create despondency, or to dissuade from active exertions in the public welfare: and it may be presumed, that flight and seclusion will not always protect the timorous from the disease; but in such cases, the danger will be in proportion to the violence and spread of the epidemic. Therefore, neighbouring towns will seldom have much to fear in opening their gates to the miserable fugitives: and

the observation of Lord Bacon will generally be found correct, that "the plague is noted to go in a blood more than from stranger to stranger."

Therefore, as what is injurious to one is found to be beneficial to another, the objection to a general state of air being in fault, that it does not display its effects more universally, is answered even by these facts, without reference to the signs of an ill state of air, or to the preceding epidemics, or to the state of the disease itself, and its acknowledged change of property in the different stages: and therefore the probability is, that contagion is only subordinate, and does not act the primary and essential part in the dissemination of pestilence.

6. In all epidemic plagues, terror, and anxiety, filth and defective nutriment, hurry and fatigue, anger and intemperance of every description, have acted as predisposing and accelerating causes of the distemper.

Therefore calmness and regularity; patience under difficulties; careful ablution; a full and rather generous system of diet, under the guidance of temperance in every thing; the spirit of benevolence and piety, such as marked the conduct of Hodges and Diemberbroeck, Langeron, and the Bishop of Marseilles; will prove, it is supposed, better prophylactics and antidotes to the disease, than can be supplied by all the "well stored magazines of health and boasted implements of our art."

CHAP. XVI.

GENERAL REMARKS ON OTHER EPIDEMIC AND CONTAGIOUS
DISEASES.

It would be an interesting and useful inquiry to compare the Yellow Fever with the Plague.

I may remark in general, that a strong analogy appears to subsist between the two diseases in all their phenomena; that the yellow fever has followed a course very nearly resembling that of the true Plague; that it has often risen from small beginnings in the bilious intermittent and remittent fever, aggravated at times by local causes, as well as by a general or pestilential constitution of the air to the height and malignity of an epidemic pestilence. Its origin has been connected with filth and impurity, and its spread chiefly confined to the poor.

It has been preceded by other epidemics, and it has had its stated seasons of beginning, increase, and decline.

It has been also progressive in its movements from one city to another.

One fact relating to it is worthy of attention; that in some of its later visitations, it has assumed more frequently the bubo and carbuncle than it did formerly.

Its doubtful origin and affinity with the bilious remittent, a degree lower in malignity, have been subjects of the keenest controversy; and its quality as a contagious disease has been no less confidently asserted than it has been denied.

From this conflict of opinion, however, much light has been thrown upon the general subject of epidemic diseases by our brethren in the United States. And now after the experience of many recent visitations from that form of Pestilence, the most intelligent, if I am capable of judging, seem to be calmly setting down in the conclusion, that it is a disease indigenous in their own cities, and rarely contagious.

“The interests of humanity,” says Dr. Rush, the American Sydenham, “are deeply concerned in the admission of the rare and feeble contagion of the yellow fever.” “And Philadelphia must admit the unwelcome truth sooner or later, that the Yellow Fever is engendered in her own bowels; or she must renounce her character for knowledge and policy, and perhaps with it, her existence, as a commercial city.”*

That our common or contagious fever is the only form of disease at present known in this country, which bears any resemblance to the Plague and Yellow Fever, will I suppose be readily granted; and, that it has in different years and in different seasons varied its aspect, will not I conclude be denied.

I presume also, that the same specific disease which we term Typhus, may be varied in its appearance and character, from the local circumstances under which it takes place, as in camps, and jails, and crowded hospitals, and filthy huts, and from proximity to noxious effluvia, arising from putrefying animal substances, stagnant pools, and unwholesome soils.

Now, it is at the option of every systematic writer

* Rush on Yellow Fever.

to assign as many species, as the varieties of situation I have enumerated, or even as the varieties of the disease in such situations, may happen more especially to attract his particular attention. But, whether the interests of science will gain by such subdivision is a question, I suspect, rather more than doubtful. I can only aver from my own experience, that I have not been enabled to profit as I could wish from the laboured distinctions which some of our systematic writers have thus adopted: and on the other hand, I cordially agree with those who admit but one identical species, under all these various modifications. I conclude, therefore, that the discussions about the contagious nature of this, and the non-contagious nature of that variety, are altogether vain and unprofitable speculations.

One of these hypothetical distinctions, I confess, has surprised me much; that a disease attended with many of those symptoms to which we attach the idea of malignity, should be distinguished from another with precisely the same appearances, by this single peculiarity, that the one is derived from a specific contagion, capable of multiplying its species, while the other neither arises from contagion, nor is possessed of any contagious property.

Now this may possibly be true; but in my practical intercourse with society, I have never dared to decide upon such a principle; holding as I do the notion of contagion, though in a limited sense, as an incidental property of fever, not an absolute or essential one. For I do not perceive how that can be essential which depends on the aptitude or inaptitude of others; upon longer or shorter exposure; upon the greater or less degree of concentration in the morbid

miasmata, connected with the circumstances of cleanliness and ventilation, and upon a great variety of contingencies.

But I would even go a step further. For I am inclined to think, that the mildest form of our common fever may occur under such disadvantageous circumstances, as to be rendered capable, under such circumstances, of communicating the disease to another.

Now, these opinions, in my view, lead to some important conclusions, in the truth of which I venture to think our best practical writers agree; and if we attended more to them, I am persuaded we should not find such a lamentable difference of opinion among practitioners in every part of the country, about the contagious or non-contagious nature of fever. One will bring his hundred cases of infection; and another will bring his thousand cases of non-infection; each laying down the law in general terms upon the question, decisively, from his own particular views.

To illustrate this remark, I may observe, that in the year 1819, I had occasion to see a very intelligent physician, connected with one or two fever hospitals in Dublin during the epidemic, who assured me he had seen no proof of the existence of contagion in the disease, as it appeared in those institutions under his care, where very great attention was paid to ventilation, &c., and where the patients were not inconveniently crowded. But soon after this, I saw another physician no less intelligent, who informed me, that in the course of about four months, between two and three hundred persons were admitted into the Belfast Fever Hospital; and they were frequently so crowded in the wards, as nearly to cover the floor with their beds;

in which case, although the building is new, airy, and well regulated, the matron, twenty-two nurses, and the apothecary, took the disease; yet it was so mild, that scarcely more than one in fifty died.

Dr. Prichard, in his excellent History of the Epidemic Fever in Bristol, remarks on "the different phenomena displayed by this disease in St. Peter's Hospital, and the Bristol Infirmary, in that city. In the former, the medical wards are very small, and it was necessary to place the beds very near to each other, and to put too great a number of patients in a given space." Though all possible attention was paid to cleanliness and ventilation as in the Belfast Hospital, "yet offensive smells were often perceptible: and it was under these circumstances that the disease was manifestly contagious." In the Bristol Infirmary, the wards are lofty and well ventilated. "Here also the fever patients were dispersed among invalids, of almost every other description. But no instance occurred of the propagation of fever: none of the nurses were attacked, nor were the patients lying in the adjacent beds in any instance infected, though cases of the worst description (of Typhus Gravior) were placed promiscuously among the other patients, scarcely two feet of space intervening between the beds."*

Dr. Prichard had too correct a view of the subject to conclude, that the disease was specifically different in these different situations. But had two other physicians, who might have taken confined and opposite views of this important matter, superintended these

* Prichard's Hist, p. 88.

institutions, doubtless we should have had a clear and demonstrative case to support each in his opinion!

The conclusions to which I have referred are these; that our continued fever, whether called Typhus, or Synochus, appears to me quite immaterial, often arises from small beginnings; that it has a power, under certain circumstances, of generating a contagious *seminium*, *de novo*, which is sometimes more, sometimes less, easily disseminated; that the symptoms of the disease are liable to be aggravated to a considerable height by local causes, chiefly in the autumnal season, and still more remarkably if it has prevailed as an epidemic in pestilential seasons; and that it declines in winter to give place to its milder form, or to some other disease in the ensuing summer.

In proof of the first of these positions, as far as testimony can go, that contagion may be generated from fever comparatively mild, or that contagious fever may originate where no contagion has been received, I could refer to the late Professor Gregory, Drs. Willan, Blackburne, Bateman, Clutterbuck, and many others. The observations of the last physician are so much to the point, that I cannot deprive myself of the satisfaction of quoting them.

“In many instances,” says Dr. Clutterbuck, “I have observed this fever to follow exposure to some common cause of disease, such as cold, fatigue or intemperance, and where not the least reason could be discovered for even suspecting it to proceed from contagion; yet the disease has often proved infectious to others: and in both cases, the symptoms have been quite undistinguishable.”

“We cannot doubt,” says Dr. Bateman, “that a

great number of the cases of fever which occur during an epidemic season, are entirely independent of contagion for their origin."* (*History of Epidemic Fever*)

Dr. Prichard observes in his history of the late epidemic fever at Bristol, that "the instances are very numerous in which fever has arisen under circumstances almost precluding the possibility of an origin in contagion: and so many examples of this description have fallen under my own observation, as fully to persuade me that this disease does originate spontaneously or independently of communication with any infected body."† Dr. Harty of Dublin is of the same opinion. (*History of Epidemic Fever*)

I cannot omit this opportunity of bearing testimony to the merits of the valuable work of Dr. Harty, on the epidemic fever in Ireland, in 1817, 18, and 19. It contains such a multitude of facts illustrative of the principles which I am supporting, that I should scarcely know where to begin with the selection. I must therefore refer to the Historical Sketch itself. Dr. Harty as little doubts the contagious nature of that epidemic, as he does its occasional independent origin. And it appears to me, that the same mode of research is applicable to the plague as to our own contagious fever. But I have so far exceeded my proposed limits in the foregoing part of this inquiry, that I must content myself with this notice; though I perceive, a vast field of research is still open for the arrangement of

* Bateman on Epidemic Fever, p. 12. † Prichard on Epidemic Fever in Bristol, p. 94.

facts, and establishment of rational principles on this highly interesting subject.

In proof of the last position, that the disease, which has appeared under a certain form in the beginning of the year, will gradually change its character towards the autumn, I can also refer to the testimony of many faithful observers, Huxham, Willan, and Bateman, in their reports.

And such a change ought not to surprise us, when we consider that the very same disease, in the course but of a few days, will sometimes change its character from that of a continued fever to a quotidian or tertian and *vice versa*: and from these again, as we find in Huxham and other writers, to an inflammatory fever, with phrensy, pleurisy, or peripneumony. So also Huxham speaks of the slow nervous fever being changed into a regular intermittent; and he says, "he well remembers (which is a more singular transformation still) that the catarrhal fever or influenza of the year 1743, frequently after two or three days, ran into a quotidian or tertian." See Huxham on Fever.

"Burnet says, in his History of the Reformation, that in the last year of Queen Mary's reign, intermitting fevers were so universal and contagious, that they raged like a plague." See Heberden.

Dr. Short mentions the change of vernal intermittents into contagious autumnal fevers. Vol. i. 303. And Lind remarks, that patients with mild intermittents, sent to Greenwich Hospital in Jamaica, near a marsh, soon grew worse, and their disease turned to a malignant yellow fever, or mortal dysentery. See Essay on Hot Climates, p. 179, quoted by Webster.

During the prevalence of the late epidemic fever

in Ireland, ague disappeared in those parts which had been previously subject to it; continued fever taking its place. Dr. Harty's Historic Sketch.

If we turn our attention from common continued fever and its varieties to some other epidemic diseases, less decidedly marked by contagious properties, what a diversity of opinion do we meet with among authors on the latter subject?

The late epidemic cholera in India affords some very striking illustrations of the principles adverted to in the preceding pages relative to the Plague. It certainly raged there with a fury and fatality little short of Pestilence. Of fifteen medical reporters in different parts of that country who noticed the subject, two thought it contagious, eight were of a contrary opinion, and five were doubtful. The learned editors of the Reports on this epidemic seem to be undecided. (See page xxix of the Preface.) But they state, that on the predisposing causes, practitioners were unanimous, viz. "rapid atmospherical vicissitudes; low marshy situations; indigestible food; a condensed, dirty, and ill-fed population." See page xxx.

It may be curious to instance the epidemic catarrh or influenza of 1803, which in the spring months over-spread the British islands, and then disappeared; similarly to that of 1782, as well as to that of 1762, described by Sir G. Baker.

Of sixty-six practitioners in Great Britain and Ireland, to whom certain queries were sent by the Medical Society relative to the phenomena of that disease, nineteen believed it to be contagious, fifteen were doubtful, and thirty-two decided in the negative, most

of these, judicious men. See *Memoirs of the Med. Soc.* vol. vi.

We have an account of the influenza of 1782, as it appeared in England, by Dr. Hamilton, who affirms that it was contagious, and only propagated by contagion: yet he informs us, that in different places, many hundred persons were seized with it at once: and Dr. Blane tell us, which is more to the point, that it spread all over Europe and Asia, that spring, and even affected mariners in the midst of the ocean.

The catarrh, or influenza of 1775, produced the same diversity of opinion. Though Dr. Cullen includes most of these epidemics under the variety *Catarrhus a contagio*; yet Dr. Haygarth, who has yielded to no man in the zeal with which he has advocated the doctrine of contagion, says expressly, that “he saw no instance of this epidemical catarrh that appeared to be communicated by infection.”* Dr. Glass, of Exeter, is of the same opinion; and he says, that in 1729, it was conjectured, that 2000 persons were seized with it in one night. But, what is more extraordinary, in the year 1557, it attacked all parts of Spain at once, so that the greatest part of the people in that kingdom were seized with it almost on the same day.”†

I apprehend, that after these facts, however in some cases Influenza might appear to have been propagated by contagious intercourse, like the epidemic cholera of India, yet no doubt can be entertained that it did not depend wholly upon contagion.

* *Med. Obs.* vol. vi. p. 394.

† *Ibid* vi. p. 376.

The several species of *Cynanche* have all afforded matter for difference of opinion on this subject.

The *C. parotidœa*, or mumps, has particularly resembled a contagious disease in its progress; but is chiefly confined to the young. Dr. Huxham believed it to be contagious; Willan thought the contrary. I have certainly seen its progress marked by those phenomena, which usually characterise a true contagious distemper.

Even the *C. tonsillaris*, is supposed by many eminent men of the present day to be at times contagious.

The *C. trachealis* has afforded indications of the same tendency, by attacking individuals of the same family in succession.

The *C. maligna* is less doubtful: but it seldom affects adults.

Dr. Bateman justly observes with regard to dysentery, that "Cullen considers it as invariably a contagious disorder, and a specific contagion as the only cause of the disease. This is an extraordinary opinion—for it is very rarely observed to pass by contagion from one individual to another, in ordinary life." See *Diseases of London*, p. 110.

Ophthalmia has caused a difference of sentiment among the most eminent oculists, who have attended to that complaint.

Most of the army surgeons believed the Egyptian ophthalmia was not contagious: and Ware thought a similar disease prevailed in England before the British brought it from Egypt.

Dr. Prichard remarks, that "the contagious nature of erysipelas seems to have been placed beyond dispute

by Dr. Wells. This disease has been manifestly communicated from one individual to another in the Bristol infirmary." See Report, p. 91.

Dr. Hulme was of opinion, that puerperal fever was *not* contagious. See Memoirs of the Medical Society.

From all these facts and opinions, one might be led to infer, that contagion is more generally attached to febrile affections than is supposed to be the case; or that it is but a rare and incidental occurrence, dependent upon many causes; or that there is something in the natural progress of all epidemic diseases, purely such, which strongly affects that of contagious disorders. A classification of the latter, according to their several degrees of contagious power, the circumstances under which they act, and the subjects most liable to be affected, would be a useful practical work; if indeed any such certainty could be attained.

The contagious nature of true Egyptian leprosy, and the contagion of scabies, of Syphilis and Porriago, are well worthy of attention, with the distinguishing laws under which they severally act; and how far a previous taint indisposes for a second. Even in Syphilis, Hunter tells us the first attack is generally most severe.

With respect to Scurvy, both Lind and Blane seem undecided as to its contagious nature: and the modern leprosy does not exhibit the malignant characters it did formerly; in some parts of the world, as in a district in the south of France, it appears to be endemic, or rather hereditary. It is a question whether *Placa Polonica* be not capable of some degree of propagation, under the

very peculiar circumstances of filth, sordidness, and sloth, which engender it.

Phthisis Pulmonalis affords another example of much doubt, perplexity, and practical importance, at the present day.

In some of the old writers, it is classed with leprosy, plague, and scabies, as to its contagious qualities. In Spain, I believe, the clothes of such are burned, as if they had died of the plague. There can be no doubt, that, in some species of Consumption, towards the decline, a very offensive halitus may be perceived from the lungs; and that many husbands and wives have survived their partners but a few months from this disease.

With regard to most of these things, our science appears to be in its infancy: and I am inclined to think the practice of inoculation, and still more that of classifying diseases, which depend on many causes, and are liable to many changes, as we do the stable and permanent characters of the subjects of natural history, have given an unscientific turn to our views, both in regard to the origin of, and to the difference between, what are termed specific contagions and what are not: and I suspect we shall have something to unlearn before we get into a proper train of investigation.

As to the origin of acute contagions, some appear to have as great an antipathy to the notion, as others to that of equivocal generation.

Dr. Blackburne has offered some ingenious suggestions on this head, in his work on scarlatina.

Dr. Heberden mentions the conversion of contagious scabies into a disease resembling it, yet without

contagion:* and Bateman, the change of prurigo mitis, a non-contagious disease of the vernal months, into contagious scabies, through want of cleanliness.†

Dr. Bateman also informs us, and I believe his statement is correct, that *Porrigo Scutulata*, as well as the scabies cachectica, both contagious diseases, arise spontaneously in children of peculiar habits, without any received contagion.‡ Indeed, there would be no end to such relations.

The general inference from these facts may be summed up in a few words.

We have undoubted testimony, that certain chronic diseases generally acknowledged to be contagious, originate amongst us in peculiar habits, under peculiar circumstances.

We have also undoubted testimony, that of the acute diseases, common contagious fever originates at certain times, in peculiar situations.

It is supported by equal authority, that common contagious fever may be so aggravated by peculiar circumstances, as to assume characters of extraordinary malignity.

It is no less true, that the highest degree of common contagious fever has on some occasions approached so nearly to the plague, that a certain diagnosis has in vain been attempted.

Therefore, the probability, indeed the most natural inference is, that the disease called Plague is only

* Heberden Comment. p. 102, 115. † Bateman on Cutan. Dis. p. 15. ‡ Ibid p. 167, 196.

the highest degree or a variety of common contagious fever: and as the latter often originates without contagion, so it is inferred may the former; and if in one instance, so it may in many: and where there is a strong predisposition, it is natural to conclude, that morbid effluvia from the diseased to the sound must assist in propagating the mischief, by acting as a powerful exciting cause.



APPENDIX.

IN this Appendix, I propose to give a few particulars relative to the Plagues of Morocco, in 1799; of Malta, in 1813; and of Noya, in Naples, in 1816; nearly in the words of the respective authors, to whom we are indebted for these accounts; who, it may be observed, are all supporters of the doctrine of pestilential fever or plague being only received by contact with infected persons or things. These writers, I trust, will excuse me, if in endeavouring to condense, I sometimes omit what does not appear immediately relevant; if I sometimes bring together illustrating passages from different parts of their works; and if I look more to naked facts than to their own opinions. At the same time, one could not calculate *a priori* on receiving much information upon any point which would shake the system they had determined beforehand to maintain.

The works from which I have taken the liberty to make these selections, are the following:—1st. An account of Timbuctoo and Housa, in Africa, by James

Grey Jackson, resident upwards of sixteen years in South and West Barbary.—2nd. A Treatise on the Plague of Malta, by Sir A. B. Faulkener.—3rd. History of the Plague of Malta, Gozo, Corfu, &c. by J. B. Tully, President of the Board of Health of the Ionian Islands, and late inspector of quarantine.—4th. An account of the Plague of Noya, compiled from different sources in the fifth number of the Quarterly Journal of Foreign Medicine and Surgery.

*Extracts from J. G. Jackson's Account of the
Plague of Morocco in 1799.*

Mogodor, April 31, 1799.—A violent fever now rages at Fas ; some assert it to be the plague, but that is Moorish report, and little to be depended on. The European Consuls at Tangier, and the Spanish Ambassador, mention it as an epidemical disorder.

May 20.—The small-pox rages violently throughout this country, and is of a most virulent kind : its origin is ascribed to the famine that has of late pervaded this country, and which was produced by the incredible devastation of the devouring locusts. The dregs of olives, after the oil had been extracted, has been the only food that could be procured by many thousands.

June 14.—Various reports reach us daily from the city of Morocco, respecting the epidemy that prevails there, some say two hundred die, some say one hundred, others limit the daily mortality to fifty.

When any light rain falls, as is the case at Morocco at this season of the year, the mortality in-

creases. Mr. Francisco Chiappe reports, that the greater portion of the people die of fear, from hunger, or bad food, or from the small-pox, which latter has raged at Morocco the last month or two; but he had not been able to ascertain, so various were the reports, whether it was the plague or not.

July 13.—We cannot ascertain if the disorder prevails in the outer town, and in the Jew's quarter or not: it is certain, however, that eight or ten die daily of the small-pox, and as many more of fevers and other disorders, as report proclaims.

25.—The epidemy is now confidently reported to us to be the plague, of a most deadly species.

Aug. 1.—As the plague now rages violently here, no one thinks of business or the affairs of this world; but each individual anticipates, that he will be next called away. The daily mortality is from sixty to seventy.

28.—The plague is rapidly diminishing from one hundred deaths to twenty or thirty per day.

Sept. 5.—The plague continues to decrease; and in another month, we expect to be quite free from it.

Oct. 29.—The plague appears to have ceased in this town. All the merchants have opened their houses; but the disorder continues in the provinces.

After the plague had subsided, a murrain attacked the cattle, and great numbers of all kinds died; so that they became reduced in the same proportion as the race of man had been reduced before.

Whilst it raged in the town of Mogodor, a small village, *Diabet*, situated about two miles south-east of that place, remained uninfected, although the communication was open between them; on the *thirty-*

fourth day, however, after its first appearance at Mogodor, this village was discovered to be infected, and the disorder raged with great violence, making dreadful havock among the human species for *twenty-one days*, carrying off during that period one hundred persons out of one hundred and thirty-three, the original population of the village before the plague visited it: none died after this; and those who were infected, recovered in the course of a month or two, some losing an eye, or the use of a leg or an arm.

Many similar circumstances might be here adduced relative to the numerous and populous villages dispersed through the extensive Shelluh province of Haha, all which shared a similar or a worse fate.

Families which had retired to the country to avoid the infection, on returning to Town, when all infection had apparently ceased, were generally attacked and died. A singular instance of this kind happened at Mogodor; where, after the mortality had subsided, a corps of troops arrived from the city of Terodant, in the province of Suse, where the plague had been raging, and had subsided: these troops, after remaining three days at Mogodor, were attacked with the disease, and it raged exclusively among them for about a month, during which it carried off two-thirds of their original number, one hundred men; during this interval, the other inhabitants of the town were exempt from the disorder, though these troops were not confined to any particular quarter, many of them having had apartments in the houses of the inhabitants of the town.

Young, healthy, and robust persons of full stamina, were, for the most part, attacked first; then

women and children ; and lastly, thin, sickly, emaciated, and old people.

The symptoms of this plague varied in different patients; the variety of age and constitution gave it a like variety of appearance and character.

It is remarkable, that the birds of the air fled away from the abode of men, for none were to be seen during this calamitous period.

Some persons were of opinion, that the infection maintained its virulence till the last ; that the decrease of mortality did not originate from a decrease of the *miasma*, but from a decrease of population, and a consequent want of subjects to prey upon ; and this indeed is a plausible idea : but admitting it to be just, how are we to account for the almost invariable fatality of the disorder, when at its height, and the comparative innocence of it when on the decline ? for *then*, the chance to those who had it was, that they would recover and survive the malady.

Fear had an extraordinary effect in disposing the body to receive the infection ; and those who were subject thereto, invariably caught the malady, which was for the most part fatal.

It was reported, that the Sultan had the plague twice during the season, as many others had ; so that the idea of its attacking like the small-pox a person but once in his life, is refuted.

Two of the principal Jews of the town giving themselves up, and having no hope, were willing to employ the remainder of their lives in affording assistance to the dying and the dead, by washing the bodies and interring them ; this business they performed during thirty or forty days, during all which time they

were not attacked. When the plague had nearly subsided, and they began again to cherish hopes of surviving the calamity, they were both smitten, but after a few days' illness recovered, and are now living.

From this last case, as well as from many others similar, but too numerous here to recapitulate, it appears, that the human constitution requires a certain miasma to prepare it to receive the pestilential infection.

It does not appear to be ascertained how the plague originated in Fas in the year 1799. Some persons have ascribed it to infected merchandise received at Fas from the East; whilst others maintain that the locusts which had infested Western Barbary during seven years, destroying the crops, the vegetables, and every green thing, even to the bark of the trees, produced such a scarcity, that the poor could obtain scarcely any thing to eat but the locusts; and living on them for several months, till a most abundant crop enabled them to satisfy the cravings of nature, they ate abundantly of the new corn, which producing a fever, brought on the contagion. At this time the small-pox pervaded the country, and was generally fatal. The small-pox is thought to be the forerunner of this species of contagion, as appears by an ancient Arabic manuscript, which gives a full account of the same disorder having carried off two-thirds of the inhabitants of West Barbary about four hundred years since; but, however the dreadful epidemic originated, the leading features of the disorder were novel, and more dreadful than the common plague of Turkey, or that of Syria or Egypt." The above Extracts are in the author's own words.

*Extracts and Remarks relative to the Plague of
Malta in 1813.*

It is the object of Sir A. B. Faulkener, in his Treatise, to prove that contagion from Alexandria, conveyed in a ship, the San Nicolo, to the house of Salvator Borg, a shoemaker in Valetta, and propagated from individual to individual, produced the pestilence in Malta; that it was independent of any season or state of the air, in the island; and that it was arrested by no other means than the rigorous enforcement of health laws.

Since I have made a few extracts from this treatise, and also since the last sheet has been with the printer, I have had an opportunity of consulting the History of the Plague at Malta, &c. just published by J. D. Tully. But I have scarcely found a single important fact added to those recorded by Sir A. B. F.; and I have not perused the work of any modern writer who deals in so many general unqualified assertions, and maintains so determined a stand on the side of specific contagion; which, he says, "must either be admitted in its fullest extent, or totally rejected." On a subject so comprehensive and obscure, in which men of the first talents have been willing to hesitate, because of the multitude of seemingly contradictory facts, Sir A. B. Faulkener has expressed himself with moderation in the spirit of a man of science, has not magnified his own labours and success in arresting this scourge, and has condescended to notice some of the arguments which might be adduced against the views he has taken: but J. B. Tully is an antagonist of a very different de-

scription, and will admit of no compromise ; he plunges at once into the heat of the general contest, and if he is not a rash combatant, he certainly has the zeal which, with truth on his side, would well deserve a conspicuous triumph.

The nature of the facts adduced by this writer is such, that we may fully admit them, without admitting his inferences of the cause: for inferences on this matter involve all the principles necessary to be taken into consideration, on the most comprehensive ground of reasoning, before we can submit to any partial conclusions. Therefore, I hold, that we at a distance are quite as competent to judge of causes, after knowing all the facts, as observers themselves. Now in this predicament do we stand with regard to almost every case of reported infection. If I am told, that a few pieces of money wrapped up in a piece of linen were thrown across a river, and that they were picked up by an old woman, who deposited them in her bosom, and carried them home ; and that the daughter of this old woman some time after was seized with the plague, while the mother escaped the disease ; I may exercise my discretion either in believing the author's inference, that the young woman was infected by the pieces of money and their envelope, or in referring the attack to some other cause. (See page 129.) In like manner, if I am told that a young man carried the author and his companions on his back through the sea, when a boat could not approach the stormy beach, that he was ill at the time, and in a few days died of the plague, while the author and his friends experienced no injury ; I may reasonably doubt, whether the disease possessed that virulent contagion which is assumed as belonging

to it; and am at liberty to question whether by burning the young man's clothes, and using other precautionary measures, a general plague was prevented; which, the author seems to take for granted, would have occurred without his extreme care. (See page 195.)

With regard to the origin of the plague in Malta, the President of the College of Physicians, two years after the event, testifies, "that he has no positive knowledge of the origin of the disease in the island: but he thinks it may have originated from the lazaretto, where persons from Alexandria had it." See the Answer to Dr. Maclean's 4th Question.

But Dr. Faulkener "in considering the imperfect state of the quarantine at Malta, thinks it not improbable that some of Salvator Borg's family, among whom it first appeared, might have got goods from the infected vessel." He observes, "I hold it as hardly requiring proof, that the disease should have found its way from an infected ship in the harbour." In this difficulty, we are told, "some new linen was discovered in the house of S. Borg, which *was confidently rumoured* to have been brought from the infected ship; and as a confirmation, that when she returned to Alexandria, some bales were missing." Dr. Calvert not satisfied with this report, gives the contagion a more aerial passage, and is strongly inclined to think, that it travelled through the air from the lazaretto to Valletta, and lighted upon the daughter of Salvator Borg. (See Granville's letter.) But the people of the island, according to Dr. Granville, "and the people in general, he says, are very correct in their observations on these subjects, firmly believe, even at this day, that S. Borg, who was a shoemaker, had purchased some linen to

line shoes from a Jew, *who had received it from Alexandria.*" Dr. Calvert calls this a story: and it would appear, that the dispatches of Sir Thomas Maitland have, since, given a kind of official authenticity to the story.

Now, the daughter of S. Borg was attacked on the 14th of April (see Faulkener, p. 76,) and died on the 19th. But her mother, the next victim, was not taken ill till the 1st of May, seventeen days after, and the father not till the 4th. Tully says, the mother was attacked a few hours after the death of her daughter, but admits she died on the 4th. Therefore, these two writers do not agree.

But, with regard to the ship, the San Nicolo, which, it was said, brought the contagion from Alexandria, Faulkener says in his evidence, it was notoriously stated, that she was sent back (on the 10th of April, Tully,) *without unloading*, consequently without perfectly ventilating the goods, from Malta: and "none of the persons who navigated her back took the plague, but arrived in perfect health." (Evid. p. 32.) And he believes, they who assisted in landing the cargo, were not affected.

As to the propagation from S. Borg's family, it was said, the mistress of a school, who attended his wife, named Agius, carried it home to the school; but Sir A. B. F. dropped the inquiry, after tracing it from the second family: and he states, not one of the cases was from his own personal observation; but he concludes, they had well marked symptoms of the plague.

Tully, however, tells us (p. 50,) that, immediately after the plague broke out in the house of the shoemaker, it attacked the *child* of the master of a wine-

house, in a place contiguous to the quarantine harbour, the resort of persons of the character of Borg, who is changed to a smuggler from a shoemaker; but he says nothing of the schoolmistress.

Therefore, so far does the proof extend as to the propagation in Valetta. Sir A. B. F. admits, it did not spread in Valetta regularly from each individual to his neighbour, or from one house to the next; and Tully, that after the 21st of May, "every day developed fresh cases in the villages: they were straggling cases, it is true." One of the captains of the Lazaretto, not a medical man, afforded Sir A. B. F. a document to show how the casals or villages were infected in a direct line from Valetta; and the Doctor's evidence in this point rests on that written statement. The Doctor confesses his ignorance of the manner in which several vessels in the two harbours received contagion.

Again, with respect to the proof of its introduction among the troops by contagion: he says, "it never was accounted for, with absolute certainty, how the contagion found its way into two of the regiments, De Rolle's and the Third Garrison Battalion (p. 122:)" and the Sicilian regiment had only one person infected; "and I have not been so fortunate as to discover the cause of the importation of the contagion into this regiment." "They were quartered near the town of Floriana, which, for a long time was ravaged with extreme severity, and in a part of it close to streets filled with pestilence, and remarkable for their crowding and every kind of nastiness." "But, in Malta, Sir A. B. F. observes, the natives of a cooler climate were almost all fortunate in escaping the contagion, especially our own countrymen" (p. 155.) In the Evi-

dence (p. 22) we find, that not one of the orderlies under the Doctor in the care of the sick, who were necessarily in contact with them and with their clothes and bedding, caught the disease. These were directed, however, to use cleanliness and prompt ablution, and to wear oiled silk dresses. "In those hospitals of the Maltese, where attention to cleanliness, and the defence of the body from contact were *not* rigorously observed, the greater number of attendants were infected: in the Military Pest House, where cleanliness *was* rigorously observed and contact avoided, the attendants all escaped."

As to the general state of disease in the island, we can learn very little, only this—that it was considered remarkably free. "Several cases of ague occurred in the vicinity of marshy grounds, first appearing in June, and continuing to occur till September" (p. 156.) "Valetta is so free from marsh fevers, that in 1801, when marsh fevers were very fatal and numerous, Valetta entirely escaped" (Evid. p. 30.) Casal Paolo, situated on the edge of wet ground, where agues were wont to be both frequent and fatal, was one of the latest and most slightly infected villages in Malta." "The same good fortune attended those who resided in the neighbourhood of the marsh of Messida, though having in its vicinity a populous town called the Pieta."—"Lastly, the marsh of Puales produced a few agues this year; but no case of Plague was discovered any where in its neighbourhood." (p. 153.)

It would appear from this, that several parts of the island were liable to ague. But Tully deals so much in sweeping assertions, that I know not how we

are to credit him in stating that there is "only one spot upon the whole island of Malta where it (intermittent fever) was ever known to exist, and both remittent and intermittent fevers are there rare occurrences." (Page 259.) Sir A. B. F. on the contrary, says, "I understood that they (marsh fevers) were of frequent occurrence in every year." (Evid. page 11.)

Where there is so much uncertainty as to the real state of the case, I can scarcely venture to draw any inference upon this subject; and unless some further very material information should be elicited at some future time, which I strongly suspect is wanting for a thorough knowledge of the event; the plague of Malta, as described by Sir A. B. Faulkener and J. D. Tully, must be considered an exception in many points to the general rule, which has usually governed such visitations. It may be peculiar to some of the islands of the Mediterranean, that the invasion of Pestilence is not characterised by that formidable preparation and combination of circumstances, which we have shewn to have existed in other parts of the world at different periods: and Sir A. B. F. may have collected every thing that properly related to that plague. But there appears to be a want of proof on two material points; the first as to the fact of importation, the second as to the cause of its decline by art. An attachment to these notions has made both of these writers inattentive to the varying features of the disorder, and to the degrees of its mortality, in its different periods. This at least would have been interesting, where every thing else is so barren of the usual incidents. But this would have looked too much like a yielding to the common notion, that season and climate and indigenous causes, had

any influence upon the progress of a foreign contagion. We must also be contented to remain in ignorance of every other circumstance which might have favoured the same doctrine.

If the disease exhibited precisely the same characters in the decline as at the beginning; if the mortality was the same in proportion to the numbers attacked at these two periods; I must in that case fully submit to the conclusion of these gentlemen, that whatever was the cause, art must have done much, perhaps all, in arresting its progress. But I have the fullest persuasion in my own mind, that unless the plague of Malta forms an anomaly in the histories of Pestilence, the disease *did* change its features in its progress, and *did* abate in its mortality and severity towards the conclusion; though we are not informed of these particulars: for if they are mentioned by either of these authors, I have not been able to find the place where they are noticed.

In reference to the beginning of the disease at Malta, Tully says (page 44,) "it is notorious, that the more insidious the first commencement of plague, the more destructive is its ultimate progress." Now, this is a statement which involves so many considerations, as a general fact, applicable to all plagues, that I cannot at all comprehend, how, upon the plain principle of a foreign contagion propagated by contact only, such a mysterious law should be developed. The fact may be true; but the application of it to his principles appears to be strangely inconsistent. Unquestionably, the more insidious the invasion of plague, the more obscure must be its origin, the more doubtful its first appearances, the more uncertain its contagious

property ; but not the more true its absolute dependence upon foreign contagion. For all these peculiarities are referable to other principles, of which I have treated before. And I should indeed consider that my labour had been in vain ; that our science was very imperfect ; and our condition truly deplorable ; if, after all the general views I have endeavoured to impress, I could admit the notion which excludes all participation of domestic or indigenous causes in the propagation of pestilence, as implied in the following words:—" The terrible fact of its too frequently, if not generally masking its advance, as if the more effectually to mark its awful character, must in itself impress us with the extent of danger to which we are exposed from plague." " But Providence, by stamping it with specific contagious powers, has checked the fatal consequences which would otherwise result." Surely, if Providence has affixed such a law upon this disease, we cannot suppose that it is partial ; and that in some countries, he has ordained, the contagion should arise spontaneously ; whilst in others, its mode of propagation should indicate the necessity of interference by a special law, to check its career : for, unless another special law appertaining to its original seat controuled its devastation, it is very clear, that the nations exposed to its spontaneous origin, as well as to the constant infraction of this law thus insisted on, would be unequally circumstanced with others ; and their gradual extermination must cause the contagion of pestilence to perish for ever with them in their graves. Therefore, as a law independent of contagion necessary to govern and arrest its progress is proved to exist in the native seat of pestilence, wherever that may be, I

do not hesitate to assert my conviction, deduced from a variety of facts, that the same law will operate in every country, where the contagionist will only admit the disease to be propagated by the medium of infected persons and things.

Sir A. B. Faulkener seems fully aware, that predisposition itself must have a powerful effect in determining the propagation of plague, and want of it in arresting the progress; setting aside every other controuling circumstance of soil, or air, or climate, or even health police. And he observes, that "so many circumstances, meeting at the same instant, may be required to render pestilential virus operative, that if they were all known to us, we might rather be surprised that the visitation of countries by pestilence is so frequent an event as we find it, in place of considering their long escape as an argument for doubting the reality of its importation." (p. 183.) I have added the latter part of this sentence, that I might not do injustice to the author's reasoning, though I do not see the necessary connexion between the principle admitted and the conclusion. For it is the very difficulty of bringing every thing at home into a state fit to co-operate with foreign contagion, that obliges me to doubt in all cases the reality of its importation, so as to constitute a Pestilence.

Sir A. B. Faulkener proceeds—"The many instances which occurred during the Plague, of whole families escaping the contamination, after having lived long in the most intimate communication with the infected, proves to what a great extent non-susceptibility may exist. Several cases were known to me of individuals, labouring under the greatest violence of

the disorder, being taken from the very bosom of their families, without communicating to them any injury—children from their parents—and husbands from their wives. Yet these families had used no kind of precaution whatever; indeed, in most instances, not so much as an attention to common cleanliness. In De Rolle's regiment, cases were taken from the very heart of a company, so urgent, as to prove fatal in a day or two, whilst the rest of the men continued in perfect health; neither was there here any assignable cause to which their escape could be attributable; oil frictions, fumigations, or any other kind of precaution, preventive, or antidote." (p. 191.) We must all feel indebted to the author for this very candid statement.

I should regret in my remarks, to take any advantage of so respectable a writer as Sir A. B. F. But I observe, he says (p. 172,) "that had the cause resided in any respect in the state of the air, we might as well have expected to chain the winds, as to restrain the spread of the disorder by the measures which were found so successful." And again (p. 181,) "That the disease was not more rapidly diffused at the first, may be explained *by the state of the air*, and other circumstances *not favouring* its contagious power in so great a degree as afterwards." I would merely take the liberty of asking, if the state of air was not so favorable to the propagation at the beginning as it was afterwards, might it not also have been unfavorable at the decline? Sir A. B. F. in his Evidence, p. 19, states very decidedly, that "during his residence at Malta, it did not appear that the temperature of the air had any thing to do with it." Then, if temperature had nothing to do with it, what state of the air does the

author allude to, when he speaks of the contagious power of the disease not being favoured at the beginning by the air?

According to Sir A. B. Faulkener, "the people were not shut up until the month of August, that is, not universally, probably partially." (p. 14.) "And in this month, the plague rapidly declined: and the disease was stopped by the organization of a sufficient corps of trusty guards and police restrictions, and by shutting up the inhabitants in their houses." But "it began to decline before the month of August:" (p. 16.) For on the 16th of July, the plague was at its height, sixty-seven died that day; the next day thirty-six; on the 18th, fifty died; on the 19th, forty-one; and on the 20th, forty-three died."—"The gentleman at the head of the police began to organize his system on the 3rd of July: the disease extended its ravages after he had organized his system in some degree; but it was not perfectly organized till the 2d of August (p. 17,) on which day fifty-persons died, on the 6th forty-three, and on the 13th thirty-one." (p. 18.)

Sir A. B. F. concludes, "I feel satisfied that the decline was very much owing to the prompt measures of police: I really do not see any other cause." (p. 19.) I must leave this point to be decided by others; but I am of a very different opinion.

After the Plague ceased at Valetta, the capital, it continued to ravage the interior; particularly the towns Rabato, Bircarcara, and Nasciar (p. 132;) and as no death occurred in any of the three, viz. in the first for thirty-six days, in the second for forty-four days, in the third for thirty-nine days, *after* Valetta was infected;

so they continued to have cases for several weeks after Valetta was free from infection." (p. 132.)

The small island of Gozo, near Malta, was not visited till about eleven months after: and what is singular, in the last plague of 1675 (p. 131,) "a considerable interval elapsed from the contamination of Valetta until that of Gozo."

It was the universal opinion, that the March and April in 1813 were colder than in most former years (p. 172:) and we are told by the Proto-medico, that during the plague, all other diseases ceased, and chronic valetudinarians became better. (See Maclean.)

It is very important to know, that "at this time and for a year previous, the Plague was raging with violence in different parts of the Levant." (p. 46.) In 1813 and 1814, it also raged on the banks of the Lepanto, on the shore of Albania, and the neighbouring coast of the Morea, in Bucharest Wallachia, in Alexandria, &c. (See Tully.) The whole range of coast from Albania to Spalatro, in the immediate neighbourhood of the Ionian islands, was, in 1815, infected with the plague, to a great degree. (Granville, p. 48.)

*Extracts from the Quarterly Journal of Medicine,
No. 5, relative to the Plague of Noya in 1816.*

"It appeared as the result of inquiries, instituted by the authorities, that a corvette from Smyrna had landed some contraband skins of leather on the open beach, between Bari and Mola, which Luzio Mastrogiacomo, of Noya, conveyed into his warehouse. The family of Serino, who lived in the house immediately

adjoining this warehouse, were the first who were taken ill. Liborio de Donne and his wife were related to Serino, and had borrowed a bed from them. Pasqua Capelli, wife of Liborio, was the first victim of the malady. Luzio Mastrogiacomo, was subsequently arrested at Bari, but died in prison there (*not indeed of the Plague,*) *before he confessed any thing.*

The harvest of 1815 had been unfavorable in all Europe, and several provinces of Naples were even threatened with *famine.*

On the 27th of December, 1815, intelligence was received at Naples of the appearance in the town of Noya of a disorder, the character of which was very suspicious. The physicians who were dispatched by the Governor of the Province to investigate the subject, *completely mistook its real nature*, for they declared it to be a *common exanthematous putrid fever, contagious by actual contact*, for those predisposed to it.

From the 23rd November to the 27th December, only four persons died of it, and the *extreme poverty* of these had prevented them having recourse to medical assistance, till within a few hours of their death.

The disease appeared under the following forms.

1. Hot nervous fever. 2. Synochus, rapidly running its course. 3. Fever, with gangrenous and malignant boils. 4. Fever with carbuncles.

On the 1st of January, 1816, the nature of the disease became but too evident. It shewed itself as a pestilential fever, which proved fatal in two or three, or at most seven days.

Several local causes, having their origin in the

peculiar construction of Noya, appeared to contribute to the increase of the disease.

While the north wind continued, the symptoms mitigated a little, but reappeared with redoubled violence on the south wind returning. Women were the first and most frequent victims. Children, and this is a deviation from common observation, were attacked in about a similar proportion. To these, in the degree of liability, succeeded young robust people, and old people were most exempt.

Two species of fever, with which the disease might have been confounded, were raging epidemically at the moment.

The first was the epidemic and sporadic fever of Italy: in this the glands occasionally swelled, but always after the fifth day; and the whole aspect of the cases was much milder.

The second was an epidemic disease, which broke out at Cagliari, and excited considerable uneasiness. It had none of the characteristic symptoms of plague; *but it swept away till the beginning of April twenty to twenty-five persons a day.*

The preceding history scarcely requires any comment. I shall merely select the chief heads. 1. The disease was preceded by famine. 2. It began amongst the poor. 3. Other diseases, with which it might be confounded, prevailed at the time. 4. It was various in its appearance, and not very contagious at the commencement. 5. The south wind increased its spread. 6. The individual who conveyed the smuggled goods was not affected. 7. The nature of the disease was doubtful. 8. It continued about six months, and like most of the plagues in that climate ceased.

On referring to Dr. Granville's letter (p. 50,) it appears, that with regard to the origin of the Plague in Noya, "the circular issued by the magistrates on that occasion, leaves not a shadow of doubt." 'This terrible scourge,' say they, 'must have come from Dalmatia. Questa terribile sciagura non ha potuto venirci che dalla Dalmazia.' But J. B. Tully says, "although the source from whence it was introduced is still involved in obscurity, the most fastidious enquirer cannot oppose its foreign origin." (p. 211.)

Here we have to choose between Smyrna and Dalmatia! In allusion to this contrariety of opinion, held "by the best informed among the inhabitants of Noya," on so important a matter, Tully thus expresses himself: "However satisfactory it may be to a government to be able to trace the source of so great an evil, in point of practice *it matters little*; it is quite sufficient to be aware of its actual presence; as wherever it may have been imported from, when once disseminated, the treatment becomes the same." In this way the difficulty is easily surmounted; and so far from *no shadow of doubt remaining*, by Dr. Granville's account, I perceive nothing but darkness impenetrable involving the whole story of importation.

It is but justice to the intelligent editor of the Quarterly Journal to state, that he has compiled a very interesting memoir of this plague: and we may perceive by comparing his account with the sketch of the same event given by Tully, how much an author's bias will influence his description, as scarcely one of the interesting concomitants recorded in the Journal, is mentioned by this author.

How much in this way may be lost to science, by

men of talents, well qualified for observation, confining their views, and refusing to notice the accompanying phenomena of pestilential diseases !

We may judge of the severity with which the regulations were enforced by the following anecdotes :—
“An inhabitant of Noya threw a pack of cards over the trench. A soldier took them up. They were both condemned to death by a court-martial and executed.”

“To intimidate the refractory, when the people were placed in complete quarantine at Malta, a person who was detected concealing his illness, whilst labouring under pestilential symptoms, was publicly made an example of and shot.” See Faulkener, p. 215.

An English nobleman travelling in Sicily enquired into the cause of that island being exempt from plague, and was answered by his informant pointing to *one of the numerous gibbets on the coast*, emphatically exclaiming, “that, Sir, is our only defence.” (Ib. p. 217.) Seeing this is only a part of the system, is it not full time that we should institute a calm and dispassionate inquiry into the absolute necessity of such melancholy sacrifices of our fellow creatures ? The subject is momentous, in whatever light we may view it.

Even the medical attendants at Noya—a thing almost incredible, if it were not so well attested—went *armed* to visit those afflicted with this dreadful evil. “They wore oil-skin caps, mantles, masks, and gloves; and carried a spear in their hands, for the purpose of killing any patient who in a fit of delirium—and the case really happened—might attempt to seize the physician or attendants !” See the Quarterly Journal, No. 5. p. 7.—This I apprehend to be the climax of

medical and political care against the contagion of Pestilence!

*Remarks on the origin of the Plague of Corfu
in 1815.*

The appearance of a pestilential disease in the Island of Corfu in 1815, has afforded another field for the hunters after contagion to exercise their skill, and as far as I can learn, the following is the result.

“In 1815, the same disease (the Plague) says Dr. Granville (p. 91,) developed itself at Corfu, by the distribution of a number of skullcaps of red cloth, left in the island by the captain of a vessel from Tunis, which had put-in in great distress at Lefchimo. The contagion was traced in the clearest manner.” The Doctor obtained this information personally from a gentleman who held at the time a high situation in the government at Corfu.

Let us now hear what J. D. Tully has to say respecting the same event. The following is an abridgement:—Spiracchi, a native of Perivoli in Corfu, the master of a boat, who carried on a smuggling trade between Albania and this island, consigned to the care of his friend, the agent of Signor Potiti, a large box, which was deposited in Potiti's house. Spiracchi carried with him a small parcel only, and went to his residence. A few days after, his wife suddenly died. He resolved to quit the country, and obtained from the agent twelve dollars, leaving the box in pledge against his return. After the lapse of a year and more, Spi-

racchi not returning, the agent opened the box, and found various articles: an opera hat, shirts, several new silk handkerchiefs, copper kitchen utensils, &c. The next day, the agent went to the village of Marathia, a short distance; and a child, seven years old, who sat upon his knee there, was taken ill the same evening, and died in three days: the agent also died in a few days. The father of the child died shortly after: and the daughter living at the village of Clomo, who came to visit the family in this distress, with her husband, returned with the disease, and they died also.

“These,” says Tully, “were the first victims to the Plague of Corfu, occasioned by contaminated goods introduced clandestinely into the country: (p. 144) a disease, the origin of which had been for a long time involved in the darkest obscurity.”

After the reader has compared this account with Dr. Granville's, he may be more interested by hearing what Tully says in another place. “It was at the little village of Marathia, in the district of Lefchimo, that the Plague first discovered itself.” On the 18th of December, 1815, communication was first made to Government. On the 19th, the author arrived there. “Nothing,” he says, “could equal the wretched appearance of the village; poverty, with all its miserable train of attendants, presenting itself to the view at every step.” Near the village, “stagnant pools and marshes every where present themselves. During the autumnal months, the remittent fever, which rages in this quarter annually, had been most destructive in this district, very few having escaped its attack. The season had been extremely mild, the rains set in earlier than usual, and were followed by a long drought and

heat, unnatural for the advanced season of the year, with a constant sirocco or south-east wind." The author reflecting on the nature of the disease, on the poverty of the inhabitants, on the natural unhealthiness of the whole district, during the autumn, that the people were unconnected with commerce, removed from the sea shore, &c.; he concluded, the *disease was the offspring of the soil*, but of a contagious nature. It was, however, treated with precautionary measures, as if it was the plague. But it appeared, "a similar disease had broke out in the neighbouring villages. The severity of the weather was almost unprecedented." Notwithstanding the precautionary measures, disease was every day breaking forth, although *not with its original force*. But as the disease developed itself, the author tells us, that all were convinced it was "the plague, the whole plague, and nothing but the plague." "The most zealous upholders of the opinion, that it was generated upon the spot, were among the first converts:" amongst whom the author ranks himself, and "trusts that they will be considered at least entitled to the praise due to sincerity." (p. 100.)

I have now to refer to some observations of J. D. Tully, relative to the close of his active labours in the island of Corfu; where I believe he did essential service, by expurgation of filthy houses, perhaps by separation of the inmates, and certainly by supplying the wretched poor with nourishment.

We have heard under what circumstances of the weather, soil, and season, the disease made its first appearance at Marathia, and how its true nature was mistaken, in the author's judgment, at the beginning. We find him referring to "the unparalleled and un-

precedented severity of the season," in the course of his operations (pages 97 and 135); and again to the early and unexpected appearance of the bilious remittent fever, when the district of Lefchimo had been just rid of the plague. (p. 266.) We discover that the time when he conjectured that his exertions had entirely put a stop to the plague, was precisely synchronous with the appearance of this fever. For as the plague chose the time to spread itself when the bilious remittent had disappeared, so it ceased when the same disease again showed itself in the spring. Therefore, I cannot but note this coincidence, whatever credit I may give to the author for the activity and zeal which he displayed in the employment of his restrictive measures; which I have no doubt on the one hand saved many lives, though I believe on the other, the consternation of an armed force surprising a neighbourhood like that of Lefchimo, separating relatives from each other, and infringing that liberty which many value as their dearest privilege, must have itself produced incalculable distress, and a state of mind and body peculiarly favorable to the reception of such a disease.

I think it important to note the coincidence, though we may both be unable to explain the cause: for as I cannot prove that the bilious remittent, the precursor and follower, had any connexion with the pestilential disease he called the plague; so neither can he demonstrate, though he gives it as his undoubted opinion, that the cordons of troops, and all the military arrangements adopted against the invisible enemy, entirely put an end to the latter disease. But I conceive it to be my business to collect the facts of the case; and I therefore think it of consequence to mark the notable

circumstances under which this remittent fever; "that raged in this quarter annually;" "that from the earliest period had been destructive to the population, and consequently to the general cultivation of that part of the country"—"a sickness, as the writer expresses it, to which the inhabitants had been inured, and which had been most destructive in this district during the autumnal months, very few having escaped its attack;" to mark, I say, the circumstances under which it signaled its invasion on the decline of the plague, in the ensuing spring. (p. 89.)

"The season of the year," says Tully, was rapidly advancing, which was to bring another train of misfortunes upon that ill-fated community; the face of the country was sufficient to point out danger, and we were certain that the March fever, the annual scourge of the district was not remote; in truth, its approach was much nearer than we had reason to expect, as the thermometer, within a few days, rose rapidly, *and the season set in far earlier than usual, hurrying all alike into disease*.—the bilious remittent fever resuming its ordinary course, no apprehension was excited even in the minds of the most timid, that this early and unexpected appearance of disease had any connexion with the recent evil." (p. 267.)

The author here guards against the fact by the *weight* of his opinion, lest any should *unwisely* draw so *pernicious* a conclusion.

Now, what do all the uncommon circumstances stated in different parts of the volume, relative to this event; as of rains earlier than usual—of long drought and heat unnatural for the season of the year—of constant sirocco—of malignant fever, in a marshy soil,

raging amongst a miserable and wretched and ill-fed population—of unprecedented severity in the weather—of the ravages of pestilence, following and giving place to remittent fever—of a sickly season setting in far earlier than usual, hurrying all alike into disease—what do these things mean, if they are not all connected in causation as well as in series?

It appears to me, therefore, and I am far from credulous, and earnest to discover the truth in this perplexing obscurity of fact and testimony, that he must be an infinitely greater sceptic, who can disbelieve such a connexion, than he who doubts the contradictory stories of Spiracchi's box, and the skullcaps of red cloth from Tunis, brought into Corfu by stress of weather and distributed in Lefchimo.





